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Flight 93 National Monument
Soil and Water Testing

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Biohabitats
Incorporated

FLIGHT 93 NATIONAL MEMORIAL

Soil (Horticulture) and Water Sampling Report

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APPENDIX

1.0 INTRODUCTION

This report focuses on the soil and water sampling and overall conditions conducted for the United State Department of the Interior National Park Service (NPS) at the proposed Flight 93 National Memorial in Somerset County, Pennsylvania. The project site is located approximately 2 miles north of Shanksville in Stony Creek Township along Skyline Road at the site of the crash and where the Flight 93 Temporary Memorial currently located.

1.1 Summary of Scope

Biohabitats' scope of work includes providing technical assistance to collect soil and water samples, provide laboratory testing results and deliver a summary report for the first phase of construction of the Flight 93 Memorial and Associated Support Facilities. Soil samples will be collected from the Sacred Ground, Field of Honor, and delineated wetlands adjacent to the ponds. The soil samples will be tested for soil fertility and other horticultural parameters. Water samples will be collected from the ponds and tested to determine if suitable for irrigation of plant material.

1.2 Purpose of Work

The soil (horticulture) sampling results will be used to further develop recommendations for soil management and amendment to insure the survival and vigor of future plantings at the memorial site. Water sampling results will be used to determine if the water is suitable for on-site irrigation usage.

1.3 Existing Conditions

The Flight 93 National Memorial project site is located in the Alleghany Mountain section of the Appalachian Plateaus province in Pennsylvania. This area is characteristic of broad valleys separated by broad, rounded ridges underlain by siltstone, shale and sand stone. The property on which the national memorial will be constructed is a reclaimed strip mine. This previous land disturbance will be reflected in the soil characteristics on-site. According to the Natural Resources Conservation Service Somerset County Soil Survey (Appendix A), the soil map units mapped on-site, in decreasing order of spatial dominance, include:

Udorthents, mine spoil (UDA, UDD, and UDF) – This soil map unit has been disturbed by earth moving activities associate with strip mining and consists of acid loamy mine spoil. Typically, these soils are very deep (> 60 inches to a restrictive layer such as bedrock) with a thin compacted surface layer over a channery subsoil. Udorthents, mine soil, are acidic with pH 3.6-5.5. A water table when present is greater than 6 feet.

Rayne-Gilpin silt loams (RgB and RgC) – This soil map unit is a combination of very deep (40 to 72 inches to a restrictive layer) and deep (20 to 40 inches to a restrictive layer), well drained residual soils. Rayne-Gilpin are acidic with pH ranges 3.6-5.5. A water table when present is greater than 6 feet.

Brinkerton silt loam and very stony silt loam (BrA, BrB and BtB) – A soil map unit with deep, poorly drained colluvial soil in the uplands. A fragipan, a layer that can restrict water flow or root penetration, can be within 20 to 40 inches from the soil surface. A water table when present can be within 0 to 0.5 feet.

Ernest silt loam (ErB) – A soil map unit with very deep, moderately well drained soils forming in colluvium. A fragipan can occur within 20 inches from the soil surface. A water table when present can be within 1.5 to 3.0 feet.

Cavode silt loam (CaB) – A soil map unit with deep, somewhat poorly drained residual soil in the uplands. Bedrock can occur within 40 to 70 inches of the soil surface. A water table when present can be within 0.5 to 1.5 feet.

Wharton silt loam (WhB) – A soil map unit with deep, moderately well drained residual soils in the uplands. Bedrock can occur within 40 to 70 inches of the soil surface. A water table when present can be within 1.5 to 3.0 feet.

Hazelton channery sandy loam (HaB and HaC) – A soil map units with deep, well drained residual soils in the uplands. A water table when present is greater than 6 feet.

The project site is currently dominated by open fields. Scattered throughout the project landscape are a few species of shrubs and saplings including speckled alder (*Alnus incana*), black locust (*Robinia pseudoacacia*) and jack Pine (*Pinus bankiana*). There are also a few wetlands on the project site located next to the Northeast and Southwest ponds and in the low lying area next to the Sacred Ground.

2.0 METHODS

2.1 Soil Sampling

Experienced Biohabitats' soil science personnel collected soil and water samples on April 13, 2009 at the Flight 93 National Memorial under the supervision of Keith Newlin, NPS Deputy Superintendent. Biohabitats team member, Meadville Land Service, Inc. located in Meadville, Pennsylvania, provided and operated the equipment required for augering at the project site.

Soil sample locations were determined based upon potential sampling areas denoted by hand on a map by NPS personnel (Appendix B). The NPS requested that one sample be taken for approximately every two acres of the project area. Prior to field collection, it was understood that sampling density might vary based upon existing soil conditions. Biohabitats sampled in or near the vicinity of the NPS's potential sampling areas; the exception being in areas 11 and 17 where the visitor facility and parking are anticipated to be placed. The primary intended use of these areas for infrastructure rather than planting eliminates the need for horticultural sampling in this location as topsoil will be placed to support any proposed landscaping. As requested by Keith Newlin, soil samples

were also collected in two potential nursery plots located north of the Field of Honor. No soil samples were taken by Biohabitats within the Sacred Ground on April 13, 2009, due to the absence of the County Coroner. On April 28, 2009, one soil sample was taken within the Sacred Ground by Keith Newlin and mailed to Biohabitats. Biohabitats then submitted the final soil sample to the Penn State laboratory. Only one sample was taken within the Sacred Ground per NPS decision based on changes in the planting plan.

Soil samples were augered by Meadville Land Service using a Bobcat® skid steer loader with a 12 inch diameter auger attachment. The auger attachment had the capacity to go 5 feet deep with no obstructions. As the Bobcat® was equipped with low ground pressure rubber tracks no ruts were created while traversing the project site. Soil sample locations within the Field of Honor were augered to a depth of 24 inches and within the potential nurseries to a depth of 5 feet, unless auger refusal occurred at a shallower depth. Due to limited access, five soil samples (two from the topsoil stockpile and 3 from the pond berms adjacent to the Sacred Ground) were dug by hand to approximately 12 inches deep.

Sampling depths were taken at approximately 12 inches in the Field of Honor and potential nurseries (Table 3.1.2). Plant feeding roots typically range from 0-24 inches for grasses and 6-36 inches for trees under ideal soil conditions. However since the project site is located on a reclaimed strip mine, the soil is disturbed and can contain restrictive layers (i.e. fragipans, lithic or paralithic bedrock) higher in the profile that can restrict plant roots. It was also noted during on-site sampling that the existing vegetation plant roots stopped around 12 inches, again justifying a sample depth of approximately 12 inches. Sampling depths were adjusted if auger refusal occurred at or shallower than 12 inches below ground surface. Soil samples taken on the topsoil stockpiles (S1 and S2) and pond berm (S25, S26 and S27) were taken as composite samples from 0-12 inches deep based on their uniform characteristics. Two cups of soil were collected from each location, placed in quart size Ziplock® bag and appropriately labeled for the laboratory.

Soil samples were submitted to the Penn State Agricultural Analytical Services Laboratory (Penn State) for soil fertility and additional tests. Soil testing methods used

by Penn State are included in Appendix C. The soil tests included: standard soil test (pH, buffer pH, phosphorus, potassium, magnesium, and calcium by the Mehlich 3 (ICP) test), lime and fertilizer recommendations for specified planting, total nitrogen (combustion), nitrate nitrogen, ammonium nitrogen, organic matter, soluble salts, aluminum stress test, sand sieve test and particle size test. Lime and fertilizer recommendations will be given for either plants adapted to acid (pH 5.5) soils or plants adapted to slightly acid (pH 6.5) soils are noted on the soil sample submittal form. These plant conditions were selected based on the acidic nature of the soils on-site and on the planting schedule and landscape plan in the Design Development Phase 1 plans for Flight 93 National Memorial (Appendix D).

2.2 Subsurface and Groundwater Conditions Investigation

The total depth of the soil borings in the Field of Honor were 24 inches deep and in the potential nurseries 60 inches deep, when unrestricted by rock or bedrock. These soil boring depths were taken to assess and characterize the soil profile (i.e. depth to weathered bedrock, depth to bedrock, and depth to groundwater). Soil characteristics seen in each soil boring were compared the soil map unit descriptions in the USDA Natural Resources Conservation Services Somerset County Soil Survey for the project site. Depth to weathered bedrock or saprolite and depth to bedrock were recorded when present. The depth to groundwater was assessed based on location and presence of redoximorphic features within the soil profile and the presence of free water in the boring.

2.3 Water Sampling

Three water samples were taken in the existing ponds, one sample from the Northeast quadrant detention pond and two samples from the Southeast quadrant pond, according to the laboratory's recommended sampling protocols. A clean 24 oz. plastic soda bottles were used to collect the water sample. Samples were taken at an approximate depth (12 inches) to potentially locate a pump. The sample bottle was rinsed three times with sample water prior to filling. The samples were kept cool and mailed to the laboratory within 36 to 48 hours of sampling.

All three water samples were submitted to the Penn State for the Irrigation Water for Turf Grass Complete Package. Water testing methods used by the laboratory are included in Appendix C. The complete package includes: pH, total alkalinity, carbonates, bicarbonates, electrical conductivity, total dissolved solids, boron, chloride, calcium, magnesium, sodium, hardness, sodium absorption ratio, nitrate-nitrogen, ammonium-nitrogen, phosphorus, potassium, sulfur, iron, manganese, copper, molybdenum and zinc.

2.4 Sample Point Location and Elevation Data

All sample locations were spatially located using the TerraSync program on a Trimble model GeoXM handheld Global Positioning System (GPS) unit capable of sub-meter accuracy. Data was collected with a maximum PDOP of 5 and minimum of 60 satellite

readings per point. The data was post processed using the Trimble Pathfinder Office software and exported into an ESRI shapefile (.shp) file format.

Elevation data for each sample point was estimated using 2 foot contours generated from PAMAP Program raster digital elevation model (DEM). The contours were generated using ArcGIS spatial analyst. This DEM dataset is produced by the PAMAP Program under the PA Department of Conservation and Natural Resources, Bureau of Topographic and Geologic Survey. This dataset consists of a raster digital elevation model with a horizontal ground resolution of 3.2 feet. The modal was constructed from PAMAP LiDAR (Light Detection and Ranging) elevation points, 2007.

3.0 RESULTS

3.1 Soil Sampling

Soil sampling locations were taken throughout the Flight 93 National Memorial project site providing a representative sampling of the site conditions (Appendix E). A general location description was recorded for each sampling location based on Design Development Phase 1 Plans for the national memorial and GPS points (Table 3.1.1). Sampling depth and general soil conditions were also recorded at each sampling location (Table 3.1.2). Soil sampling results from the Penn State are included in Appendix F.

The particle size analysis results for soil textural class are consistent with field observations and NRCS Soil Survey mapping. The soil texture at the project site is primarily composed of clay loam and sandy clay loam. Clay, the smallest particle in the fine earth fraction, can contribute to land use restrictions. A sandy clay loam texture can have a clay content ranging from 20% to 30%, while clay loam texture can have approximately 27% to 40% clay content. The sand sieve analysis concluded the gravel content percentage ranges from 17.7% to 52.1% with an average of 33% for all soil samples. The gravel content for each sample is provided in Table 3.1.2.

For all the soil samples, the aluminum stress test concluded the ratio of calcium (Ca) to aluminum (Al) is greater than 1.0; therefore "there is a relatively small risk that aluminum in the soil is at toxic levels." However, very sensitive seedling species including sugar maple, honey locust and aspen may still be at risk. Refer to the Al stress test results in Appendix F for a table of relatively Al sensitive and relatively Al insensitive eastern forest tree species provided by the Penn State Agricultural Analytical Services Laboratory.

The test results for the pH, organic matter, soluble salts, and total nitrogen of the in-situ soil will be the primary focus for analysis. The averages for each type of soil sample are provided in Table 3.1.3. These parameters are the basic soil properties that may need to be amended to achieve the desired landscaping goal for the project site.

Soil pH, the degree of acidity or alkalinity, is the dominant parameter that affects all other soil chemical, physical and biological properties (Brady & Weil 1999). The pH

ranges from very strong acidity to strong acidity throughout the project site. This pH range is congruent based on the NRCS Somerset County Soil Survey mapping.

Organic matter is an important component to the soil that also contributes the soil's physical, chemical and biological properties such as infiltration, soil structure, and provides nutrients to plant and microbial communities. A well-drained mineral surface soil or topsoil typically contains 1% to 6% organic matter (Brady & Weil 1999). The percent organic matter on the project site ranges from 1.3% to 4.9% and is highly correlated to spatial location. The reclaimed grassy meadows including the Field of Honor, nursery #1, and nursery #2 have the lowest levels of organic matter, while the topsoil stockpile, berm and wetland have a slightly higher organic matter percentage. The Sacred Ground had the highest organic matter percentage. This may have been a sampling artifact as the sample submitted had a thick root mat that was difficult to sort out from the soil sample.

The average soluble salts for the entire project site are considered non-saline. Based on these results, soluble salts should have no to little harmful effect on the plant material. In excessive amounts, soluble salts can cause plant injury or death.

Nitrogen is an essential for plant growth and development. While the present amount of total nitrogen in the in-situ soil is low, the amount of nitrogen in the soil for a specific project will be dependent on the plant palate and the desired goals for the landscape. It is also apparent that the nutrient levels throughout the reclaimed strip mine (i.e. soil samples taken within the Field of Honor, nursery #1, and nursery #2) have optimum to above optimum levels of magnesium, while the other nutrients remain below optimum. This optimum level of magnesium may be contributed to by the parent material or another in-situ source.

Table 3.1.1 Soil Sampling General Location Description					
Sample No.	**Sampling Area**	**Proposed Planting**	**Latitude***	**Longitude***	**Elevation** (feet)**
S1	Topsoil Stockpile	Meadow Mix	40.0585644	-78.9078372	2455
S2	Topsoil Stockpile	Meadow Mix	40.05793433	-78.9080768	2458
S3	Field of Honor	Meadow Mix	40.05549853	-78.89956012	2411
S4	Field of Honor	Meadow Mix	40.05533747	-78.89927796	2407
S5	Field of Honor	Meadow Mix	40.05533512	-78.89927726	2409
S6	Field of Honor	Meadow Mix	40.05592401	-78.89779572	2414
S7	Field of Honor	Meadow Mix	40.05618941	-78.89734073	2429
S8	Field of Honor	Meadow Mix	40.05713563	-78.89784446	2434
S9	Field of Honor	Memorial Grove	40.05689344	-78.89879926	2492
S10	Field of Honor	Memorial Grove	40.05812571	-78.90443046	2496
S11	Field of Honor	Memorial Grove	40.05902349	-78.9036111	2480
S12	Field of Honor	Meadow Mix	40.05862767	-78.90280349	2505
S13	Field of Honor	Meadow Mix	40.05891877	-78.90560542	2513
S14	Field of Honor	Meadow Mix	40.05951245	-78.90539313	2468
S15	Field of Honor	Meadow Mix	40.05638905	-78.90365436	2461
S16	Field of Honor	Meadow Mix	40.05532552	-78.90411343	2432
S17	Field of Honor	Meadow Mix	40.05436538	-78.90401625	2423
S18	Field of Honor	Meadow Mix	40.05486407	-78.90235113	2386
S19	Field of Honor	Meadow Mix	40.05396416	-78.90151797	2386
S20	Field of Honor	Meadow Mix	40.05318884	-78.90318651	2385
S21	Field of Honor	Meadow Mix	40.05243242	-78.9051522	2369
S22	Field of Honor	Meadow Mix	40.05100674	-78.90272855	2365
S23	Field of Honor	Meadow Mix	40.05165167	-78.90135074	2359
S24	Field of Honor	Meadow Mix	40.05183731	-78.90006774	2349
S25	Pond Berm	Meadow Mix	40.05311422	-78.89949973	2374
S26	Pond Berm	Meadow Mix	40.05134327	-78.90563556	2378
S27	Pond Berm	Meadow Mix	40.05164638	-78.90593978	2380
S28	Field of Honor	Meadow Mix	40.05283864	-78.90674821	2382
S29	Field of Honor	Meadow Mix	40.05469858	-78.89897323	2342
S30	Field of Honor	Meadow Mix	40.05391484	-78.8974357	2344
S31	SE Pond Wetlands	Wetland Species	40.05372205	-78.89497568	2330
S32	SE Pond Wetlands	Wetland Species	40.05267919	-78.89535991	2329
S33	Field of Honor	Memorial Grove	40.05234266	-78.89489364	2378
S34	Field of Honor	Memorial Grove	40.05561161	-78.89571881	2440
S35	Field of Honor	Meadow Mix	40.05834412	-78.89835552	2450
S36	Field of Honor	Meadow Mix	40.05807577	-78.90015824	2453
S37	Field of Honor	Meadow Mix	40.05732537	-78.90161192	2485
S38	NE Pond Wetlands	Wetland Species	40.05921785	-78.90200911	2420
S39	NE Pond Wetlands	Wetland Species	40.05614875	-78.89965818	2412
S40/N1-1	Nursery #1	Memorial Grove	40.0556748	-78.89908646	2426
S41/N1-2	Nursery #1	Memorial Grove	40.0682819	-78.88532975	2421
S42/N1-3	Nursery #1	Memorial Grove	40.06887865	-78.88511739	2424
S43/N1-4	Nursery #1	Memorial Grove	40.06959058	-78.88474781	2424
S44/N2-1	Nursery #2	Memorial Grove	40.070271	-78.88469749	2381
S45/N2-2	Nursery #2	Memorial Grove	40.07737927	-78.8860623	2378
S46/N2-3	Nursery #2	Memorial Grove	40.0769497	-78.88606916	2377
S47/N2-4	Nursery #2	Memorial Grove	40.07645447	-78.8860553	2380
S48	Sacred Ground	Grasses & Wildflowers	40.051108	-78.904461	2372
**Note: Data provided in WGS 1984 Geographic Coordinates.*					

Table 3.1.2 Sampling Depth and General Soil Conditions						
Sample No.	**Depth Sampled (inches)**	**Total Depth of Soil Boring (inches)**	**Topsoil Thickness (inches)**	**Soil Textural Class**	**Gravel % (≥ 2.0mm diameter)**	**Soil Map Unit**
S1	0-12	12	NA	Clay loam	51.6	NA*
S2	0-12	12	NA	Clay loam	32.0	NA*
S3	12	24	≤ 4	Clay loam	35.7	ErB
S4	12	24	≤ 4	Clay loam	25.3	ErB
S5	12	24	≤ 4	Clay loam	34.6	BrA
S6	12	24	≤ 4	Clay loam	24.1	BrA
S7	12	24	≤ 4	Sandy clay loam	29.0	BrA
S8	12	24	≤ 6	Sandy clay loam	43.6	CaB
S9	12	24	≤ 4	Sandy clay loam	30.7	RgB
S10	12	24	≤ 4	Clay loam	39.5	WhB
S11	12	24	≤ 4	Sandy clay loam	51.4	RgC
S12	12	24	≤ 4	Clay loam	27.7	WhB
S13	12	24	≤ 4	Clay loam	35.4	WhB
S14	12	24	≤ 4	Loam	42.7	UDA
S15	12	24	≤ 4	Clay loam	30.3	UDA
S16	12	12	≤ 4	Sandy clay loam	41.6	UDA
S17	12	24	≤ 4	Sandy clay loam	38.5	UDF
S18	12	12	≤ 4	Sandy clay loam	48.3	UDF
S19	12	24	≤ 4	Clay loam	18.4	UDA
S20	12	24	≤ 4	Sandy clay loam	35.6	UDD
S21	12	24	≤ 4	Sandy clay loam	28.5	UDF
S22	12	24	≤ 4	Sandy clay loam	40.3	UDA
S23	6	24	≤ 4	Sandy clay loam	52.1	UDF
S24	6	12	≤ 4	Sandy clay loam	32.2	UDD
S25	0-12	12	NA	Clay loam	29.8	NA*
S26	0-12	12	NA	Clay loam	17.7	NA*
S27	0-12	12	NA	Clay loam	35.0	NA*
S28	6	24	≤ 4	Clay loam	29.9	ErB
S29	12	24	≤ 4	Sandy clay loam	33.2	BrA
S30	12	24	≤ 4	Sandy clay loam	34.8	UDD
S31	12	24	≤ 4	Clay loam	21.8	UDD
S32	6	24	≤ 4	Clay loam	20.2	UDD
S33	10	24	≤ 4	Sandy clay loam	42.0	UDF
S34	12	24	≤ 4	Clay loam	32.8	HaC
S35	12	24	≤ 4	Clay	31.9	RgC
S36	12	24	≤ 4	Loam	40.2	CaB
S37	12	24	≤ 4	Loam	43.2	UDD
S38	6	24	≤ 4	Sandy clay loam	41.9	BrA
S39	6	24	≤ 4	Clay loam	28.1	BrA
S40/N1-1	12	12	≤ 4	Clay loam	22.0	RgC
S41/N1-2	12	36	≤ 4	Clay loam	27.9	RgC
S42/N1-3	12	36	≤ 4	Clay loam	29.4	RgC
S43/N1-4	12	60	≤ 4	Clay loam	35.7	RgC
S44/N2-1	12	36	≤ 4	Clay loam	31.3	BrB
S45/N2-2	12	36	≤ 4	Clay loam	28.4	Ar
S46/N2-3	12	36	≤ 4	Sandy clay loam	28.1	BrB
S47/N2-4	12	36	≤ 4	Clay loam	39.6	BtB
S48	6	6	Not Determined	Loam	26.7	UDF
**Note: Soil samples were no taken from soil developing in-situ. This soil is either in a stockpile or in a pond berm.*						

Table 3.1.3. Soil Sample Result Averages						
Type of Soil Sample	**Average pH**	**Verbal Soil pH**	**Average Organic Matter (%)**	**Average Soluble Salts (mmhos cm^{-1})**	**Degree of Salinity**	**Average Total Nitrogen (%)**
Field of Honor	5.06	Very Strong Acidity	1.8	0.27	Non-saline	0.09
Sacred Ground	4.80	Very Strong Acidity	4.9	0.13	Non-saline	0.20
Topsoil Stockpile	5.00	Very Strong Acidity	2.2	0.05	Non-saline	0.09
Wetlands	5.53	Strong Acidity	2.1	0.09	Non-saline	0.09
Berm	4.80	Very Strong Acidity	2.4	0.07	Non-saline	0.10
Nursery #1	5.28	Strong Acidity	1.3	0.13	Non-saline	0.07
Nursery #2	5.25	Strong Acidity	1.9	0.15	Non-saline	0.10

3.2 Surface and Subsurface Conditions

Existing surface and surface conditions were recorded while traversing the project site and at each soil boring. A thin topsoil and surface erosion were the most notable surface conditions. The topsoil is thin (≤ 4 inches) throughout the project site. This is expected on a reclaimed strip mine that has undergone major land disturbances. Also noted throughout the project site, mainly on side slopes, are areas of surface erosion. There are areas of bare soil and rocks where sheet flow is concentrating during and after rain events. Some of the erosional areas are beginning to forms rills.

The soil borings were similar to the soil map units delineated by NRCS Soil Survey at project site. Overall, the soil profiles had uniform characteristics and no distinct layers confirming the occurrence of past land disturbances. The soils had loamy textures with channers or flat rock fragments throughout the profile. While bedrock can be encountered at varying depths within the project site; weathered bedrock or saprolite typically started between 12 and 24 inches below ground surface. Saprolite is not an ideal medium to support vigorous plant growth because it has few available nutrients.

3.3 Groundwater Conditions

Indicators of groundwater such as the presence of redoximorphic features within the soil profile and the presence of free water in the boring were documented at each soil boring. Based on the Somerset County Soil Survey, a few soil map units can experience higher groundwater elevations; however no groundwater or groundwater indicators were

encountered in the upland landscape positions in the Field of Honor or in potential nurseries.

As anticipated, redoximorphic features within the upper 12 inches of the soil profile and soil saturation were present in the soil borings in the wetlands (S31, S32, S38 and S39). Surface ponding was also noted in the vicinity around these soil borings and in the area immediately adjacent to the Sacred Ground fence. These observations were observed in broad flat areas that receive overland flow and are within areas where the soils can support a higher groundwater table.

3.4 Water Sampling

Three water samples were taken on-site to determine its potential suitability as irrigation water (Appendix E). A general location description for the water samples are provided in Table 3.4.1. Test results from the Penn State are included in Appendix G. Based on the results, none of the parameters analyzed exceed the normal range or upper limit for turf grass irrigation. However in all three samples, there are several parameters below the normal ranges including total alkalinity, electrical conductivity, total dissolved solids, calcium, magnesium, nitrate-nitrogen, ammonium-nitrogen, phosphorus, potassium, sulfur, and iron.

Table 3.4.1 Water Sampling General Location Description

Sample No.	Sampling Area	Latitude*	Longitude*
1	NE Pond	40.05594461	-78.8994741
2	SE Pond 1	40.05335996	-78.8988416
3	SE Pond 2	40.05167946	-78.89835822
**Note: Data provided in WGS 1984 Geographic Coordinates.*			

4.0 CONCLUSION

The soil profiles were in agreement with the NRCS Soil Survey mapping having uniform characteristics and no distinct layers. This observation is consistent with the reported occurrence of past land use disturbances. Rock fragments were present throughout the soil with weathered bedrock beginning as high as 12 inches from the soil surface. During the soil sampling, the groundwater table was only observed within the wetland areas.

Overall, the soils are non-saline, acidic and have low organic matter which is consistent with the current land use, a reclaimed strip mine. It is anticipated the soil will require amendments consistent with the desired plant palate and the landscape goals for the project site.

5.0 REFERENCES

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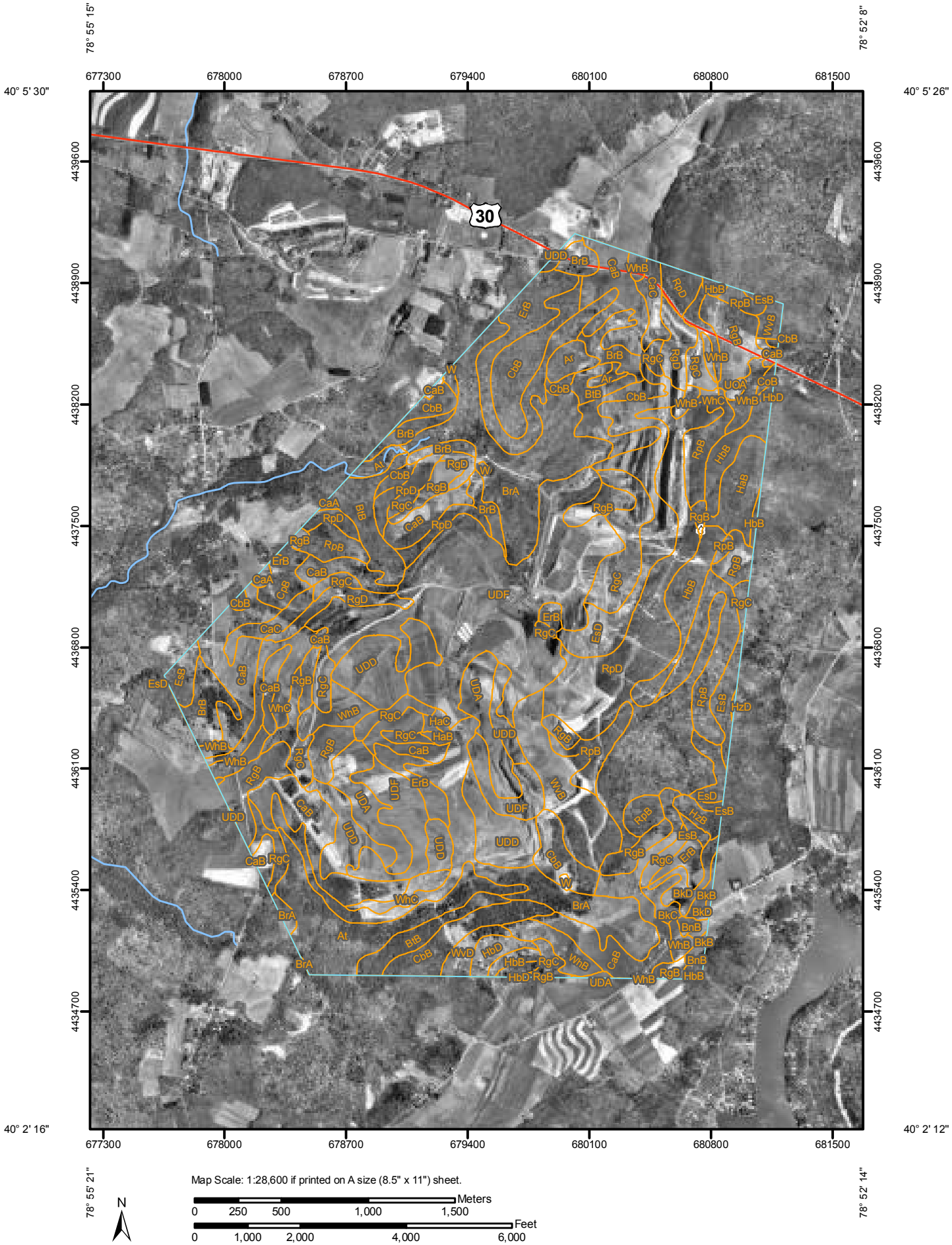
APPENDIX A

NRCS SOIL SURVEY MAP AND LEGEND

Soil Map—Somerset County, Pennsylvania
(Flight 93 National Memorial Project Site Vicinity)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads

MAP INFORMATION

Map Scale: 1:28,600 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 17N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Somerset County, Pennsylvania
Survey Area Data: Version 4, Sep 29, 2008

Date(s) aerial images were photographed: 4/20/1994; 4/27/1993

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

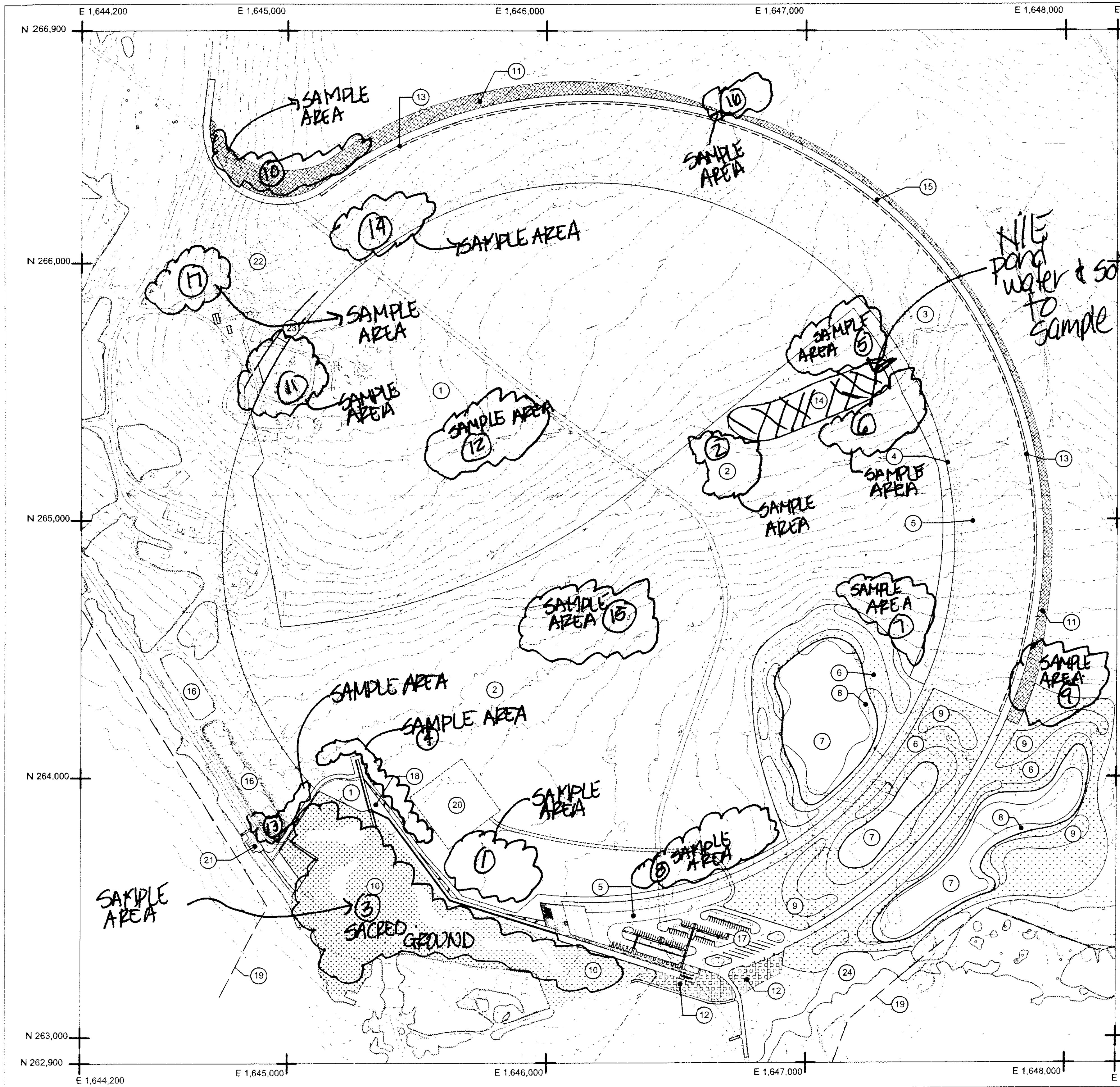
Map Unit Legend

Somerset County, Pennsylvania (PA111)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Ar	Armagh silt loam	14.0	0.5%
At	Atkins silt loam	79.7	3.1%
BkB	Berks-Weikert channery silt loams, 3 to 8 percent slopes	5.8	0.2%
BkC	Berks-Weikert channery silt loams, 8 to 15 percent slopes	7.1	0.3%
BkD	Berks-Weikert channery silt loams, 15 to 25 percent slopes	13.5	0.5%
BnB	Blairton channery silt loam, 3 to 8 percent slopes	5.8	0.2%
BrA	Brinkerton silt loam, 0 to 3 percent slopes	214.9	8.4%
BrB	Brinkerton silt loam, 3 to 8 percent slopes	66.9	2.6%
BtB	Brinkerton very stony silt loam, 0 to 8 percent slopes	61.1	2.4%
CaA	Cavode silt loam, 0 to 3 percent slopes	3.2	0.1%
CaB	Cavode silt loam, 3 to 8 percent slopes	243.9	9.5%
CaC	Cavode silt loam, 8 to 15 percent slopes	25.8	1.0%
CbB	Cavode very stony silt loam, 0 to 8 percent slopes	132.1	5.1%
CoB	Cookport loam, 3 to 8 percent slopes	2.4	0.1%
CpB	Cookport very stony loam, 3 to 8 percent slopes	15.5	0.6%
ErB	Ernest silt loam, 3 to 8 percent slopes	91.0	3.5%
EsB	Ernest very stony silt loam, 3 to 8 percent slopes	29.7	1.2%
EsD	Ernest very stony silt loam, 8 to 25 percent slopes	83.5	3.3%
HaB	Hazleton channery sandy loam, 3 to 8 percent slopes	29.9	1.2%
HaC	Hazleton channery sandy loam, 8 to 15 percent slopes	4.4	0.2%
HbB	Hazleton very stony sandy loam, 3 to 8 percent slopes	63.2	2.5%
HbD	Hazleton very stony sandy loam, 8 to 25 percent slopes	15.8	0.6%
HzB	Hazleton very bouldery sandy loam, 0 to 8 percent slopes	8.5	0.3%
HzD	Hazleton very bouldery sandy loam, 8 to 25 percent slopes	0.6	0.0%
RgB	Rayne-Gilpin channery silt loams, 3 to 8 percent slopes	130.2	5.1%

Somerset County, Pennsylvania (PA111)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
RgC	Rayne-Gilpin channery silt loams, 8 to 15 percent slopes	131.7	5.1%
RgD	Rayne-Gilpin channery silt loams, 15 to 25 percent slopes	36.6	1.4%
RpB	Rayne-Gilpin very stony silt loams, 3 to 8 percent slopes	111.5	4.3%
RpD	Rayne-Gilpin very stony silt loams, 8 to 25 percent slopes	241.9	9.4%
UDA	Udorthents, mine spoil, 0 to 8 percent slopes	60.2	2.3%
UDD	Udorthents, mine spoil, 8 to 25 percent slopes	122.8	4.8%
UDF	Udorthents, mine spoil, 25 to 70 percent slopes	322.8	12.6%
UOA	Udorthents, smoothed	2.5	0.1%
W	Water	1.9	0.1%
WhB	Wharton silt loam, 3 to 8 percent slopes	69.6	2.7%
WhC	Wharton silt loam, 8 to 15 percent slopes	39.4	1.5%
WvB	Wharton very stony silt loam, 3 to 8 percent slopes	65.9	2.6%
WvD	Wharton very stony silt loam, 8 to 25 percent slopes	11.0	0.4%
Totals for Area of Interest		**2,566.5**	**100.0%**

APPENDIX B

NATIONAL PARK SERVICE POTENTIAL SAMPLING LOCATIONS



SYMBOL LEGEND

- ALLEE TREES AND WALK, N.I.C.
- FIELD OF HONOR PLANTING MEADOW MIX 1
- MEADOW MIX 2
- MEADOW MIX 3
- MEADOW MIX 4
- AREAS OF BIOFILTRATION
- NO MOW GRASSES
- MEMORIAL GROVES , N.I.C.
- SHRUBS
- WETLAND PLANTING, RUSHES, PERENNIALS AND SEDGES
- WETLAND PLANTING WITH WATER PLANTS
- SACRED GROUND PLANTING
- (E) SHRUB THICKET
- (E) TREES
- LIMIT OF WORK

(*) NOT SHOWN (SAMPLE AREA) = 17 WHICH MAY BE THE TEMPORARY NURSERY

(*) = PROPOSED SAMPLE LOCATIONS 1-16

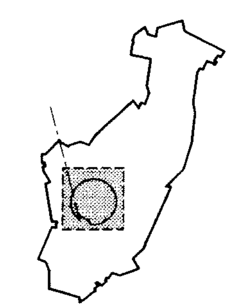
(*) SAMPLE AREA 17-20: PER FIELD WORK

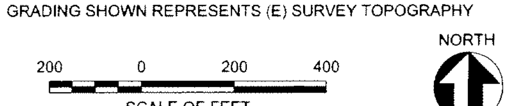
KEYNOTE LEGEND

1. FIELD OF HONOR - MEADOW MIX 1 SEEDING WITH MEADOW GRASSES AND WILDFLOWERS ON DISTURBED AREAS. RESPREAD 4" OF TOPSOIL FROM STOCKPILE ON SITE
2. FIELD OF HONOR - MEADOW MIX 1 SEEDING WITH MEADOW GRASSES AND WILDFLOWERS ON UNDISTURBED AREAS
3. MEMORIAL 40 GROVES, N.I.C.
4. ALLEE TREES AND WALK, N.I.C.
5. SEEDING WITH NO-MOW GRASSES
6. MEADOW MIX 2 - SEEDING WITH WETLAND MEADOW GRASSES AND WILDFLOWERS
7. CONSTRUCTED WETLANDS
8. CONSTRUCTED WETLAND PLANTING
9. NATIVE SHRUB PLANTINGS
10. SACRED GROUND SEEDING AND PLANTINGS
11. MEADOW MIX 3 - SEEDING WITH MEADOW GRASSES AND WILDFLOWERS. RESPREAD 4" OF TOPSOIL FROM STOCKPILE ON SITE
12. MEADOW MIX 4 - SEEDING WITH MEADOW GRASSES AND WILDFLOWERS
13. STABILIZED OVERFLOW PARKING
14. (E) POND TO BE RESHAPED
15. RING ROAD, REFER TO CIVIL DWGS.
16. (E) SEASONAL POND TO REMAIN
17. SACRED GROUND PARKING LOT
18. SACRED GROUND PLAZA, REFER TO ARCHITECT DWGS
19. LIMIT OF WORK
20. STABILIZED TENT SITE AND ACCESS ROAD FOR SPECIAL EVENTS
21. FAMILY PARKING LOT
22. VISITOR FACILITY PARKING, N.I.C.
23. VISITOR FACILITY, N.I.C.
24. (E) SHRUB THICKET

GENERAL NOTES

1. - REFER TO CIVIL DWGS. FOR GRADING, ROAD WORK AND STORM DRAINAGE INFORMATION
2. - REFER TO CIVIL DWGS. FOR SITE UTILITIES INFORMATION
3. - REFER TO ARCHITECT DWGS. FOR SACRED GROUND PLAZA INFORMATION
4. - PROPOSED TREES AND PLANTINGS TO BE IRRIGATED THROUGH ESTABLISHMENT PERIOD
5. - GRADING SHOWN REPRESENTS (E) SURVEY TOPOGRAPHY





DESIGN DEVELOPMENT PHASE 1

DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
TS, WTB	L-110	FIELD OF HONOR LANDSCAPE PLAN	-
CADD: TS			PKG. NO. -
TECH. REVIEW:			SHEET
DATE: 12/11/08		FLIGHT 93 NATIONAL MEMORIAL	OF -

APPENDIX C

PENN STATE AGRICULTURAL ANALYTICAL SERVICES LABORATORY TESTING METHODS

Home

Lab Programs

Submitting samples

Lab Methods

Personnel

View your soil fertility reports

Contact the lab

Soil Methods

Analyte	Method	Reference
pH	Water	Eckert, D. and J.Thomas Sims. 1995. Recommended Soil pH and Lime Requirement Tests. p. 11-16. *In* J.Thomas Sims and A. Wolf (eds.) Recommended Soil Testing Procedures for the Northeastern United States. Northeast Regional Bulletin #493. Agricultural Experiment Station, University of Delaware, Newark, DE.
Lime requirement	Mehlich buffer	Mehlich, A. 1976. New buffer pH method for rapid estimation of exchangeable acidity and lime requirement of soils. Commun. Soil Sci. Plant Analysis. 7, 637-652.
Available P, K, Ca, and Mg	Mehlich 3 (ICP)	Wolf, A.M. and D.B. Beegle. 1995 Recommended soil tests for macronutrients: phosphorus, potassium, calcium, and magnesium. p. 25-34. *In* J. Thomas Sims and A. Wolf (eds.) Recommended Soil Testing Procedures for the Northeastern United States. Northeast Regional Bulletin #493. Agricultural Experiment Station, University of Delaware, Newark, DE.
Cation Exchange Capacity (CEC)	Summation	Ross, D. 1995. Recommended soil tests for determining soil cation exchange capacity. p. 62-69. *In* J. Thomas Sims and A. Wolf (eds.) Recommended Soil Testing Procedures for the Northeastern United States. Northeast Regional Bulletin #493. Agricultural Experiment Station, University of Delaware, Newark, DE.
Organic matter	Loss on Ignition	Schulte, E.E. 1995. Recommended Soil Organic Matter Tests. p. 47-56. *In* J. Thomas Sims and A. Wolf (eds.) Recommended Soil Testing Procedures for the Northeastern United States. Northeast Regional Bulletin #493. Agricultural Experiment Station, University of Delaware, Newark, DE.
Total C	Combustion- Fisons NA 1500 Elemental Analyzer	Nelson, D.W. and L.E. Sommers. 1996. Total Carbon, Organic Carbon, and Organic Matter. p 961-1010. In D.L. Sparks (ed). Methods of Soil Analysis, Part 3. Chemical Methods. Soil Science Soceity of America Book Series Number 5. American Society of Agronomy, Madison, WI. Pella, E. 1990. Elemental organic analysis. Part 1. Am. Lab 22: 116-125
Nitrate N	Specific Ion Electrode	Griffin, G. 1995. Recommended Soil

		Nitrate-N Tests. p. 17-24. *In* J. Thomas Sims and A. Wolf (eds.) Recommended Soil Testing Procedures for the Northeastern United States. Northeast Regional Bulletin #493. Agricultural Experiment Station, University of Delaware, Newark, DE.
Ammonium N	Specific Ion Electrode	Mulvaney, R.L. 1996. Nitrogen-Inorganic Forms. p. 1123-1200. *In* D.L. Sparks (ed). Methods of Soil Analysis, Part 3. Chemical Methods. Soil Science Soceity of America Book Series Number 5. American Society of Agronomy, Madison, WI.
Total N	Combustion- Fisons NA1500 Elemental Analyzer	Bremner, J.M.. 1996. Nitrogen-Total. p. 1085-1121. *In* D.L. Sparks (ed). Methods of Soil Analysis, Part 3. Chemical Methods. Soil Science Soceity of America Book Series Number 5. American Society of Agronomy, Madison, WI. Pella, E. 1990. Elemental organic analysis. Part 1. Am. Lab 22: 116-125
Soluble Salts	Electrical Conductivity (1:2)	Gartley, Karen. 1995. Recommended Soluble Salts Tests. p. 70-75. *In* J. Thomas Sims and A. Wolf (eds.) Recommended Soil Testing Procedures for the Northeastern United States. Northeast Regional Bulletin #493. Agricultural Experiment Station, University of Delaware, Newark, DE.
Total Sorbed Cu, Zn, Pb, Ni, Cd, Cr, Mo	EPA Method 3050/3051	USEPA. 1986. Test Methods for Evaluating Solid Waste. Volume IA: 3rd Edition. EPA/SW-846. National Technical Information Service. Springfield, Va.
Particle Size Analysis	Hydrometer Method	Gee, G.W. and J.W. Bauder. 1986. Particle size analysis. p. 383-411. *In* A. Klute (ed.) Methods of Soil Analysis. Part 1. Physical and Mineralogical Methods. Agronomy Monograph #9 (2nd Edition). Amer. Soc. Agron. Madison, WI.
As	EPA Method 3050/3051 + 7060	USEPA. 1986. Test Methods for Evaluating Solid Waste. Volume IA: 3rd Edition. EPA/SW-846. National Technical Information Service. Springfield, Va.
Se	EPA Method 3050/3051 + 7740	USEPA. 1986. Test Methods for Evaluating Solid Waste. Volume IA: 3rd Edition. EPA/SW-846. National Technical Information Service. Springfield, Va.
Hg	EPA Method 7473	USEPA. 1986. Test Methods for Evaluating Solid Waste. Volume IA: 3rd Edition. EPA/SW-846. National Technical Information Service. Springfield, Va.
Calcium carbonate equivalency (CCE)	ASTM Method C 25	Standard Test Methods for Chemical Analysis of Limestone, Quicklime, and Hydrated Lime, ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA

Penn State Agricultural Analytical Services Laboratory Irrigation Water Test Methods	
Analyte	**Method***
pH	EPA 150.1
Total Alkalinity	SM 4500 Cl^- E
Chloride (Cl)	SM 4500Cl^- E
ICP Elements • calcium (Ca) • magnesium (Mg) • sodium (Na) • phosphorus (P) • potassium (K) • sulfur (SO_4) • iron (Fe) • manganese (Mn) • copper (Cu) • molybdenum (Mo) • boron (B) • zinc (Zn)	EPA 200.7 Modification to method: Sample acidified (1% HNO3) as received or acidified after filtering through Whatman 1 or 2, if cloudy or particulates present.
Nitrate-N	EPA 353.2
Total Dissolved Solids	Estimated from conductivity measurement
**Note: All other parameters for irrigation water testing are determined by calculations from the tests listed above.* ***Note: Testing methods based on email correspondence with Ann Wolf, Director of the Agricultural Analytical Services Laboratory at Penn State.*	

From: ANN WOLF
To: Sarah Roberts;
Subject: RE: FW: water test methods
Date: Wednesday, April 22, 2009 11:18:35 AM

Sarah,
Since there are no specific standard methods for irrigation water, we offer modifications of EPA methods where possible. Some of the modifications are implemented in order to make the cost of testing more reasonable. A list of these methods with modifications as appropriate are provided below:

pH: EPA 150.1
Alkalinity: SM 4500 Cl^- E
Chloride: SM 4500 Cl^- E
ICP elements (calcium, magnesium, sodium, phosphorus, potassium, sulfur, iron, manganese, copper, molybdenum, and zinc): (EPA 200.7): sample acidified (1 % HNO3) as received or acidified after filtering through Whatman 1 or 2 if cloudy or particulates present.
Nitrate-N: EPA 353.2
Total dissolved solids: estimated from conductivity measurement

All other parameters on the reports are determined by calculation from those listed above.

Best regards,

Ann

On Wed, Apr 22, 2009 10:53 AM, **Sarah Roberts <sroberts@biohabitats.com>** wrote:

> Ann,
>
> We were asked by our client to supply the testing methods used the lab for our water samples. Could you provide me a list of the EPA methods you use for the tests in the irrigation water for turf grass complete package? Or direct me to a source (website manual, etc.) that lists these methods?
>
> Thanks for your time,
> Sarah
>
> _____
> Sarah M. Roberts
> Environmental Scientist
>
> 2081 Clipper Park Road
> Baltimore, MD 21211
>
> 410.554.0156
> 410.554.0168 (fax)
>
> Visit us at www.biohabitats.com<http://www.biohabitats.com/>
> "Restore the earth and inspire ecological stewardship!"
> [http://www.biohabitats.com/images/logos/CHESemail.jpg]
>
> _____
> From: ANN WOLF [amw2@psu.edu]
> Sent: Wednesday, April 22, 2009 9:58 AM
> To: Sarah Roberts
> Subject: Re: FW: water test methods

Sarah,
Some are the same, but most are different (or modifications of the drinking water methods) since irrigation water tests do not require EPA procedures. If you have a question about a specific method, please let me know.

Ann Wolf

From: Sarah Roberts [mailto:sroberts@biohabitats.com]
Sent: Monday, April 20, 2009 3:57 PM
To: aaslab@psu.edu
Subject: water test methods

Are the drinking water test methods listed on your website (http://www.aasl.psu.edu/Water_drinking_methods.html) the same methods you use for your irrigation water tests?

Thanks,
Sarah

_____

Sarah M. Roberts
Environmental Scientist

2081 Clipper Park Road
Baltimore, MD 21211

410.554.0156
410.554.0168 (fax)

Visit us at www.biohabitats.com<http://www.biohabitats.com/>
"Restore the earth and inspire ecological stewardship!"
[https://webmail.psu.edu/webmail/get_file.cgi?dir=attach&fname=image001.jpg]

Ann Wolf, Ph.D.
Director
Agricultural Analytical Services Laboratory
Tower Road
Penn State University
University Park, PA 16802
814-863-0841 (phone)
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814-863-4540 (fax)
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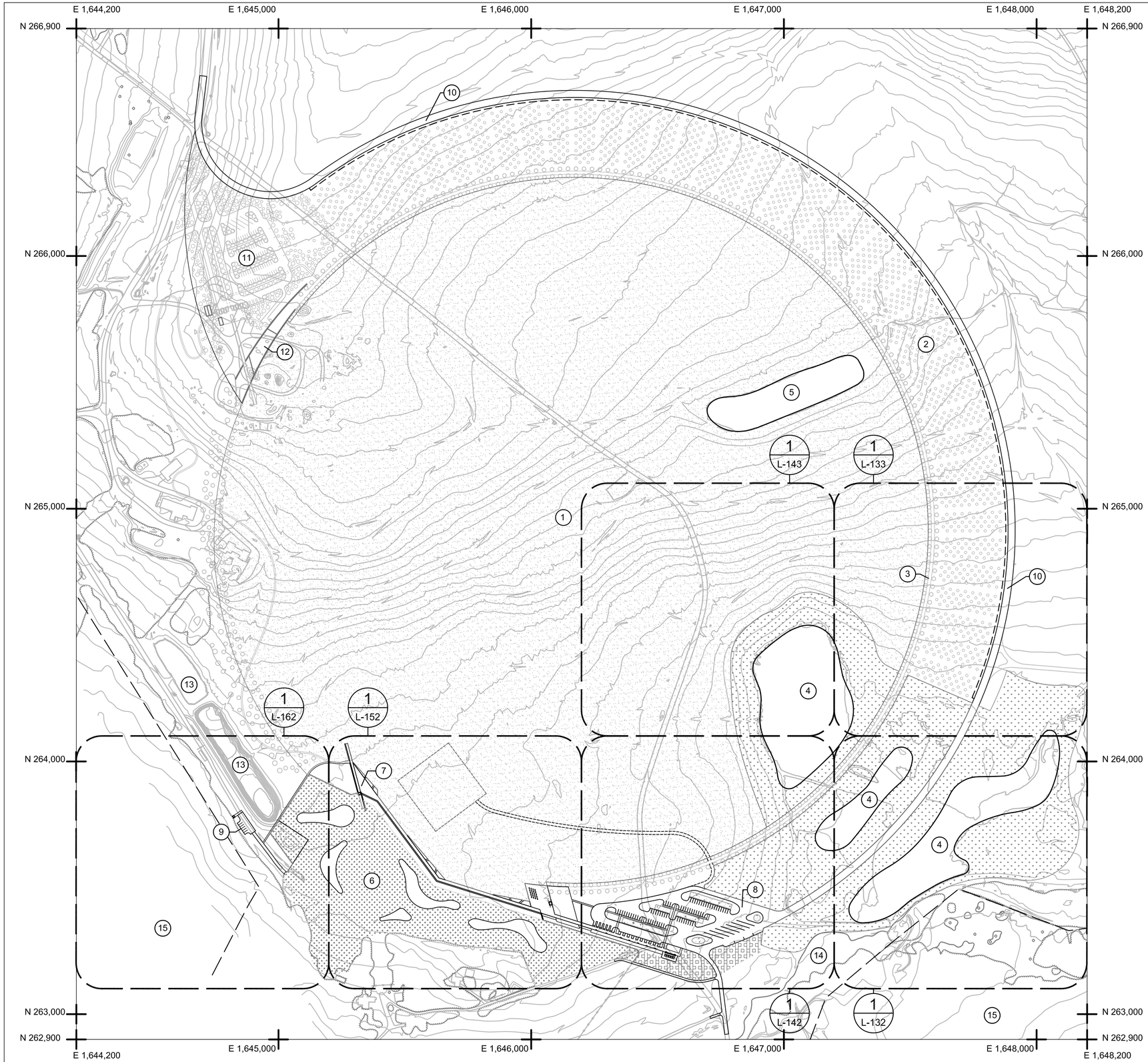
http://www.aasl.psu.edu

APPENDIX D

DESIGN DEVELOPMENT PHASE I FOR FLIGHT 93 NATIONAL MEMORIAL LANDSCAPE PLAN AND PLANTING SCHEDULE

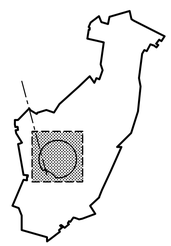


SYMBOL LEGEND

- ALLEE TREES AND WALK, N.I.C.
- FIELD OF HONOR
- MEMORIAL GROVES , N.I.C.
- LIMIT OF WORK
- SACRED GROUND SEEDING
- (E) SHRUB THICKET
- (E) TREES

KEYNOTE LEGEND

1. FIELD OF HONOR
2. MEMORIAL 40 GROVES, N.I.C.
3. ALLEE TREES AND WALK, N.I.C.
4. (E) WETLAND TO BE RESHAPED
5. (E) POND TO BE RESHAPED
6. SACRED GROUND
7. SACRED GROUND PLAZA, SEE ARCHITECT'S DWGS.
8. SACRED GROUND PARKING
9. FAMILY PARKING
10. RING ROAD
11. VISITOR FACILITY PARKING, N.I.C.
12. VISITOR FACILITY, N.I.C.
13. (E) SEASONAL POND TO REMAIN
14. (E) SHRUB THICKET TO REMAIN
15. (E) TREES TO REMAIN



KEY PLAN

GENERAL NOTES

1. - REFER TO CIVIL DWGS. FOR GRADING, ROAD WORK AND STORM DRAINAGE INFORMATION
2. - REFER TO CIVIL DWGS. FOR SITE UTILITIES INFORMATION
3. - REFER TO ARCHITECT DWGS. FOR SACRED GROUND PLAZA INFORMATION
4. - PROPOSED TREES AND PLANTINGS TO BE IRRIGATED THROUGH ESTABLISHMENT PERIOD
5. - GRADING SHOWN REPRESENTS (E) SURVEY TOPOGRAPHY

NORTH

200 0 200 400

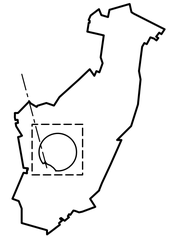
SCALE OF FEET

DESIGN DEVELOPMENT PHASE 1

DESIGNED: TS, WTB CADD: TS TECH. REVIEW: DATE: 12/11/08	SUB SHEET NO. L-100	TITLE OF SHEET LANDSCAPE KEY PLAN FLIGHT 93 NATIONAL MEMORIAL	DRAWING NO. - PKG. NO. - SHEET OF -

Quantity	*Scientific Name*	Common Name	Size	Condition	Notes
	TREES				
8	*Acer rubrum*	Red Maple	2" Cal.	B&B	
69	*Amelanchier laevis*	Allegheny Serviceberry	6' Ht.	B&B	
69	*Amelanchier laevis*	Allegheny Serviceberry	9' Ht.	B&B	
288	*Amelanchier laevis*	Allegheny Serviceberry		1 GAL	
72	*Betula nigra*	River Birch	2" Cal.	B&B	
59	*Carpinus caroliniana*	American Hornbeam	1-1.5" Cal.	B&B	
64	*Carpinus caroliniana*	American Hornbeam	2-2.5" Cal.	B&B	
10	*Fagus grandifolia*	American Beech	3.5-4" Cal.	B&B	Specimen
2	*Fagus grandifolia*	American Beech	6-7" Cal.	B&B	Specimen
113	*Fraxinus pennsylvanica*	Green Ash	2" Cal.	B&B	
65	*Hamamelis virginiana*	Witch Hazel	2" Cal.	B&B	
1,544	*Hamamelis virginiana*	Witch Hazel		1 GAL	Wetland
54	*Nyssa sylvatica*	Black Gum	2" Cal.	B&B	
79	*Platanus occidentalis*	Sycamore	2" Cal.	B&B	Matched, specimen
12	*Platanus occidentalis*	Sycamore	4" Cal.	B&B	Matched, specimen
9	*Platanus occidentalis*	Sycamore	6"-7" Cal.	B&B	Specimen
23	*Pinus rigida*	Pitch Pine	6' Ht.	B&B	
140	*Pinus strobus*	Eastern White Pine	8' Ht.	B&B	
41	*Pinus virginiana*	Virginia Pine	6' Ht.	B&B	
	SHRUBS				
1,836	*Alnus rugosa*	Hazel Alder		1 GAL	Wetland
1,895	*Cornus racemosa*	Gray Dogwood		1 GAL	Wetland
355	*Cornus sericea*	Redosier Dogwood	2' Ht.	3 GAL	
68	*Ilex verticillata*	Winterberry Holly	5' Ht.	7 GAL	
5,966	*Ilex verticillata*	Winterberry Holly		1 GAL	Wetland
1,344	*Viburnum sp.*	Viburnum		1 GAL	Wetland
	PERENNIALS				
773	*Acorus americanus*	Sweet Flag		2" plugs	
3,882	*Anemone canadensis*	Meadow Anemone		2" plugs	
6,223	*Carex pensylvanica*	Pennsylvania Sedge		1 QT	
3,066	*Carex plantaginea*	Plantain Leaf Sedge		2" plugs	
4,704	*Dryopteris marginalis*	Marginal Fern		1 QT	
	Eragrostis spectabilis	Purple Love Grass			Hydroseeded
585	*Eurybia divaricata*	White Wood Aster		2" plugs	
4,209	*Gaillardia pulchella*	Indian Blanketflower		2" plugs	
3,839	*Juncus effusus*	Soft Rush		2" plugs	
1,152	*Lobelia cardinalis*	Cardinal Flower		2" plugs	
500	*Lobelia siphilitica*	Great Blue Lobelia		2" plugs	
4,209	*Rudbeckia hirta*	Blackeyed Susan		1 QT	
2,268	*Sisyrinchium angustifolium*	Blue-Eyed Grass		2" plugs	
	BULBS				
73,333	*Camassia scilloides*	Atlantic camas	top size #1		
73,333	*Lycoris radiata*	Resurrection Flower	top size #1		
73,334	*Narcissus sp.*	White Daffodil	top size #1		
	WETLAND				
38,998	*Sedges, rushes, perennials*			2" plugs	
20,484	*Water Plants*			2" plugs	

1 / L-201 PLANTING SCHEDULE

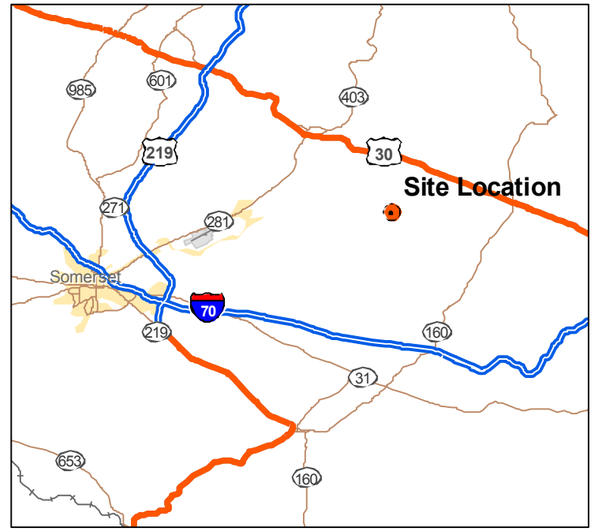


DESIGN DEVELOPMENT PHASE 1

DESIGNED: TS, WTB CADD: TS TECH. REVIEW: DATE: 12/11/08	SUB SHEET NO. L-201	TITLE OF SHEET: PLANTING SCHEDULE FLIGHT 93 NATIONAL MEMORIAL	DRAWING NO. - PKG. NO. - SHEET - OF -

APPENDIX E

FLIGHT 93 NATIONAL MEMORIAL SAMPLING LOCATIONS



Somerset County, PA

N

S

0 500 1,000 2,000 Feet

Data Source: Aerial imagery from PAMAP Program, PA Department of Conservation and Natural Resources, Bureau of Topographic and Geologic Survey, 2005.

Legend

Sample Locations

- Soil Sample Locations
- Water Sample Locations

Flight 93 National Memorial
Sampling Locations

Biohabitats Incorporated

04/15/09

APPENDIX F

SOIL SAMPLING TESTING RESULTS

PENNSTATE

(814) 863-0841 Fax (814) 863-4540

Agricultural Analytical Services Laboratory
The Pennsylvania State University
University Park PA 16802
http://www.aasl.psu.edu

SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43270		MD-BALTIMORE		1	

SOIL NUTRIENT LEVELS	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 11 lb/100 square feet
(0-3 % Mg)

Magnesium: Magnesium requirement can be met by replacing the CALCITIC LIMESTONE recommended above with an equivalent amount of DOLOMITIC LIMESTONE -OR- by applying 2.9 lb/100 sq feet of EPSOM SALTS (MGSO4) in addition to the amount of calcitic limestone recommended.

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.1	4	6.3	0.1	0.4	2.4	9.2	1.3	4.5	26.1	1.3	1.3	0.05

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6068

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

PENNSTATE

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Agricultural Analytical Services Laboratory
The Pennsylvania State University
University Park PA 16802
http://www.aasl.psu.edu

SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43271		MD-BALTIMORE		2	

SOIL NUTRIENT LEVELS	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 14 lb/100 square feet
(0-3 % Mg)

Magnesium: Magnesium requirement can be met by replacing the CALCITIC LIMESTONE recommended above with an equivalent amount of DOLOMITIC LIMESTONE -OR- by applying .3 lb/100 sq feet of EPSOM SALTS (MGSO4) in addition to the amount of calcitic limestone recommended.

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:										Optional Tests:		
[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca			
4.9	2	8.1	0.1	1.0	2.5	11.7	1.1	8.3	21.6	3.0	1.1	0.04

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6069

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43272		MD-BALTIMORE		3	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 9 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests: Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca			
4.9	12	5.1	0.2	2.3	4.9	12.4	1.2	18.4	39.4	2.0	1.0	0.15

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6070

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43273		MD-BALTIMORE		4	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 14 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests: Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca			
4.5	48	8.1	0.3	2.4	3.8	14.6	1.9	16.5	26.2	1.1	1.0	0.19

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6071

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43274		MD-BALTIMORE		5	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 5 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.3	6	3.3	0.2	2.7	3.6	9.7	1.6	27.7	36.8	1.4	1.0	0.07

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6072

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43275		MD-BALTIMORE		6	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 14 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
4.7	6	7.5	0.2	2.1	3.2	12.9	1.4	16.1	24.5	1.6	0.9	0.08

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6073

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

PENNSTATE

(814) 863-0841 Fax (814) 863-4540

Agricultural Analytical Services Laboratory
The Pennsylvania State University
University Park PA 16802
http://www.aasl.psu.edu

SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43276		MD-BALTIMORE		7	

SOIL NUTRIENT LEVELS	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 7 lb/100 square feet
(0-3 % Mg)

Magnesium: Magnesium requirement can be met by replacing the CALCITIC LIMESTONE recommended above with an equivalent amount of DOLOMITIC LIMESTONE -OR- by applying .3 lb/100 sq feet of EPSOM SALTS (MGSO4) in addition to the amount of calcitic limestone recommended.

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:										Optional Tests:		
[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca			
5.2	4	3.9	0.1	1.0	2.2	7.2	1.4	13.4	31.1	0.7	0.9	0.05

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6074

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43277		MD-BALTIMORE		8	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 5 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.8	6	2.2	0.1	1.3	4.5	8.1	1.2	16.5	55.2	1.8	0.9	0.05

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6075

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43278		MD-BALTIMORE		9	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 5.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: NONE
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.6	6	2.8	0.1	1.6	4.7	9.2	1.1	16.9	51.6	1.5	1.3	0.04

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6076

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43279		MD-BALTIMORE		10	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 5.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: NONE
(0-3 % Mg)

Magnesium: Magnesium requirement can be met by applying .4 lb/100 sq feet of EPSOM SALTS (MGSO4)

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests: Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca			
5.9	28	3.9	0.1	0.9	6.1	11.1	1.2	8.1	55.5	3.7	2.9	0.06

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6077

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

PENNSTATE

(814) 863-0841 Fax (814) 863-4540

Agricultural Analytical Services Laboratory
The Pennsylvania State University
University Park PA 16802
http://www.aasl.psu.edu

SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43280		MD-BALTIMORE		11	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 5.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: NONE
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): 3 lb/100 sq feet

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.4	8	4.5	0.1	1.5	3.3	9.5	1.5	16.2	34.9	1.6	1.1	0.07

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6078

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43281		MD-BALTIMORE		12	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 11 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests: Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca			
4.9	2	6.9	0.1	2.2	2.8	12.1	1.2	17.9	23.6	1.5	0.9	0.05

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6079

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43282		MD-BALTIMORE		13	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 11 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.1	2	6.9	0.1	2.3	3.1	12.5	1.0	18.6	25.0	1.5	0.9	0.06

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6080

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43283		MD-BALTIMORE		14	

SOIL NUTRIENT LEVELS	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 9 lb/100 square feet
(0-3 % Mg)

Magnesium: Magnesium requirement can be met by replacing the CALCITIC LIMESTONE recommended above with an equivalent amount of DOLOMITIC LIMESTONE -OR- by applying 2.9 lb/100 sq feet of EPSOM SALTS (MGSO4) in addition to the amount of calcitic limestone recommended.

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 0.5 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:										Optional Tests:		
[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca			
5.8	84	5.7	0.1	0.4	5.2	11.4	0.7	3.7	45.5	2.8	3.3	0.06

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6081

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43284		MD-BALTIMORE		15	

SOIL NUTRIENT LEVELS	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 9 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:										Optional Tests:		
[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca			
5.5	6	5.1	0.1	1.0	4.3	10.5	1.1	9.6	40.6	2.2	1.1	0.06

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6082

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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Agricultural Analytical Services Laboratory
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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43285		MD-BALTIMORE		16	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 5 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.6	14	3.3	0.1	1.6	5.5	10.5	1.3	15.6	51.8	2.5	1.2	0.15

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6083

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43286		MD-BALTIMORE		17	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH	■		
Phosphate (P_2O_5)	■		
Potash (K_2O)	■		
Magnesium (MgO)	■	■	■
Calcium(CaO)	■		

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 5 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.4	6	3.3	0.1	1.9	3.8	9.2	1.3	21.1	41.7	1.8	1.0	0.10

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6084

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43287		MD-BALTIMORE		18	

SOIL NUTRIENT LEVELS	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 14 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:										Optional Tests:		
[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca			
4.1	6	7.5	0.1	1.4	1.6	10.6	1.3	13.3	14.9	2.2	0.8	0.27

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6085

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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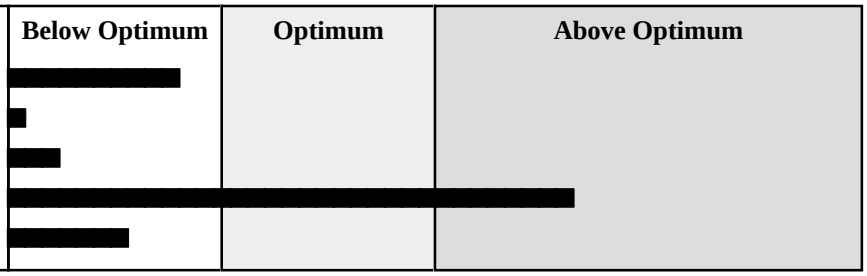
SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43288		MD-BALTIMORE		19	

SOIL NUTRIENT LEVELS



RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 18 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.2	4	9.3	0.1	3.0	3.8	16.2	0.9	18.3	23.4	1.7	0.9	0.10

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6086

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43289		MD-BALTIMORE		20	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 9 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests: Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca			
4.6	4	5.7	0.1	1.3	2.5	9.6	1.2	13.5	26.0	1.4	0.9	0.10

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6087

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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Agricultural Analytical Services Laboratory
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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43291		MD-BALTIMORE		21	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 9 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
4.9	4	5.7	0.1	2.5	2.5	10.9	1.2	23.3	23.0	1.6	0.9	0.09

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6089

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43292		MD-BALTIMORE		22	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 18 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
3.7	2	9.9	0.1	3.0	3.7	16.7	0.8	17.7	22.2	2.3	0.9	0.81

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6090

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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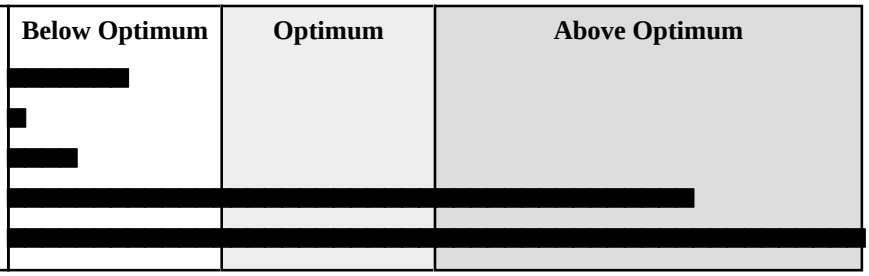
SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43293		MD-BALTIMORE		23	

SOIL NUTRIENT LEVELS



RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 41 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests: Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca			
3.7	4	19.5	0.2	4.5	12.5	32.2	0.5	14.0	38.9	1.9	0.9	1.99

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

The high acidity of this sample indicates that a portion of the acidity is not in the exchangeable form. Therefore the CEC and the percent saturations were calculated using a maximum exchangeable acidity of 15 meq/100 g.

6091

Home Garden-1

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43294		MD-BALTIMORE		24	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 21 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
4.8	4	10.5	0.1	2.9	4.5	18.1	0.8	16.1	25.1	1.8	0.9	0.10

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6092

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43295		MD-BALTIMORE		25	

SOIL NUTRIENT LEVELS	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 34 lb/100 square feet
(0-3 % Mg)

Magnesium: Magnesium requirement can be met by replacing the CALCITIC LIMESTONE recommended above with an equivalent amount of DOLOMITIC LIMESTONE -OR- by applying .6 lb/100 sq feet of EPSOM SALTS (MGSO4) in addition to the amount of calcitic limestone recommended.

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
4.7	2	16.5	0.1	0.9	2.6	18.5	0.6	4.7	13.8	2.1	0.9	0.09

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

The high acidity of this sample indicates that a portion of the acidity is not in the exchangeable form. Therefore the CEC and the percent saturations were calculated using a maximum exchangeable acidity of 15 meq/100 g.

6093

Home Garden-1

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43296		MD-BALTIMORE		26	

SOIL NUTRIENT LEVELS	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 21 lb/100 square feet
(0-3 % Mg)

Magnesium: Magnesium requirement can be met by replacing the CALCITIC LIMESTONE recommended above with an equivalent amount of DOLOMITIC LIMESTONE -OR- by applying 2.2 lb/100 sq feet of EPSOM SALTS (MGSO4) in addition to the amount of calcitic limestone recommended.

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
4.9	2	11.1	0.1	0.6	2.3	14.1	0.9	4.1	16.3	2.8	0.8	0.05

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6094

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43297		MD-BALTIMORE		27	

SOIL NUTRIENT LEVELS	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 21 lb/100 square feet
(0-3 % Mg)

Magnesium: Magnesium requirement can be met by replacing the CALCITIC LIMESTONE recommended above with an equivalent amount of DOLOMITIC LIMESTONE -OR- by applying 2.9 lb/100 sq feet of EPSOM SALTS (MGSO4) in addition to the amount of calcitic limestone recommended.

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
4.8	2	10.5	0.1	0.4	1.7	12.8	1.1	3.4	13.5	2.2	0.8	0.06

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6095

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43298		MD-BALTIMORE		28	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 5 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.4	6	2.8	0.1	2.2	5.8	11.0	1.3	20.4	52.8	1.0	1.1	0.08

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6096

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43299		MD-BALTIMORE		29	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH	■		
Phosphate (P_2O_5)	■		
Potash (K_2O)	■		
Magnesium (MgO)	■	■	■
Calcium(CaO)	■		

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 21 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.1	4	11.1	0.1	2.4	4.4	18.0	0.8	13.2	24.3	1.8	0.9	0.09

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6097

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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University Park PA 16802
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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43300		MD-BALTIMORE		30	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 14 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
4.6	6	8.1	0.2	2.0	6.4	16.6	0.9	12.1	38.3	1.3	0.9	0.54

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6098

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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Agricultural Analytical Services Laboratory
The Pennsylvania State University
University Park PA 16802
http://www.aasl.psu.edu

SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43301		MD-BALTIMORE		31	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 23 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
4.9	6	11.7	0.1	1.7	3.1	16.7	0.9	10.3	18.6	2.5	1.0	0.10

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6099

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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http://www.aasl.psu.edu

SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43302		MD-BALTIMORE		32	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 9 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.2	6	5.7	0.2	1.5	3.9	11.3	1.5	13.0	34.9	2.2	1.2	0.07

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6100

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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http://www.aasl.psu.edu

SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43303		MD-BALTIMORE		33	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 5.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 9 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
4.9	8	10.5	0.2	1.6	3.2	15.5	1.0	10.6	20.9	1.9	1.0	0.15

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6101

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43304		MD-BALTIMORE		34	

SOIL NUTRIENT LEVELS	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 5.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: NONE
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): 3 lb/100 sq feet

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:										Optional Tests:		
[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca			
5.4	10	6.3	0.1	1.1	4.5	12.0	1.2	9.2	37.3	2.4	1.6	0.23

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6102

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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(814) 863-0841 Fax (814) 863-4540

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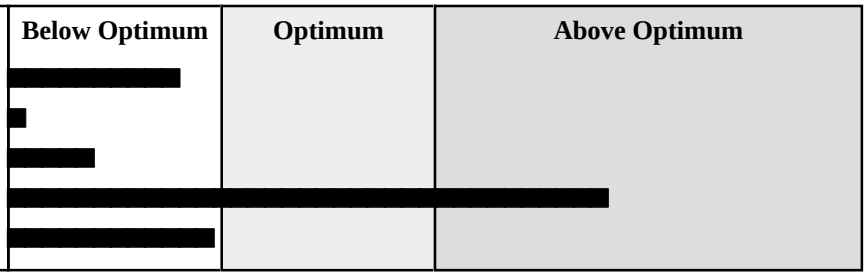
SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43305		MD-BALTIMORE		35	

SOIL NUTRIENT LEVELS



RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 11 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.3	6	6.9	0.2	3.5	6.7	17.2	1.2	20.1	38.8	2.0	1.1	0.20

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6103

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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University Park PA 16802
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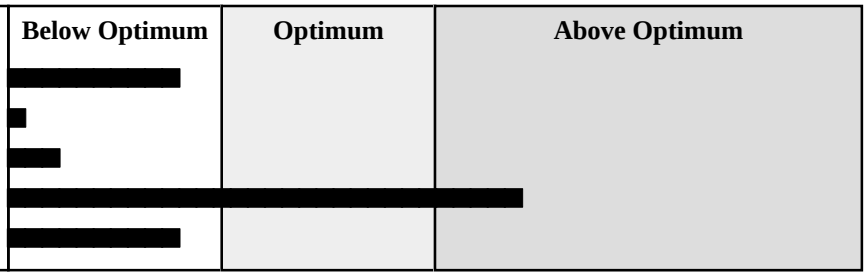
SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43306		MD-BALTIMORE		36	

SOIL NUTRIENT LEVELS



RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 11 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.4	8	6.9	0.1	2.5	5.8	15.3	0.9	16.3	37.8	2.1	0.9	0.06

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6104

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43307		MD-BALTIMORE		37	

SOIL NUTRIENT LEVELS	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 21 lb/100 square feet
(0-3 % Mg)

Magnesium: Magnesium requirement can be met by replacing the CALCITIC LIMESTONE recommended above with an equivalent amount of DOLOMITIC LIMESTONE -OR- by applying .9 lb/100 sq feet of EPSOM SALTS (MGSO4) in addition to the amount of calcitic limestone recommended.

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:										Optional Tests:		
[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca			
5.2	2	10.5	0.1	0.8	3.0	14.5	0.8	5.7	21.0	1.2	0.9	0.05

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6105

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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(814) 863-0841 Fax (814) 863-4540

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The Pennsylvania State University
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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43308		MD-BALTIMORE		38	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: NONE
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
6.4	6	2.0	0.2	1.6	6.0	9.8	1.8	16.4	61.4	1.2	1.8	0.08

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6106

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

PENNSTATE

(814) 863-0841 Fax (814) 863-4540

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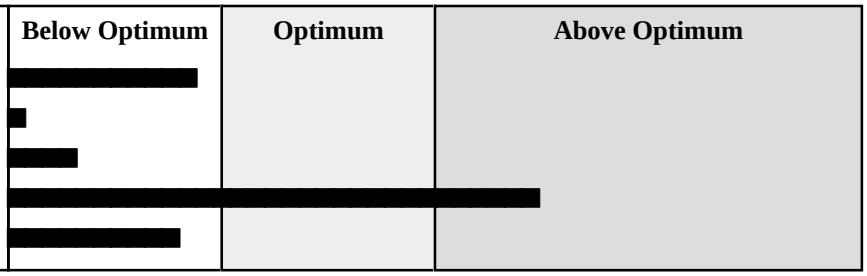
The Pennsylvania State University
University Park PA 16802
http://www.aasl.psu.edu

SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43309		MD-BALTIMORE		39	

SOIL NUTRIENT LEVELS



RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 11 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.6	8	6.3	0.2	2.6	5.4	14.5	1.2	18.0	37.3	2.3	1.2	0.10

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6107

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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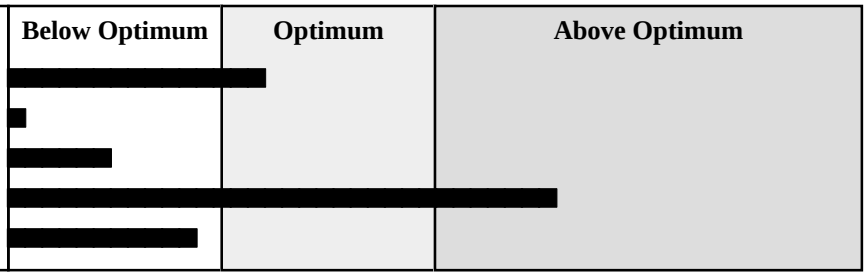
SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43310		MD-BALTIMORE		N1-1	

SOIL NUTRIENT LEVELS



RECOMMENDATIONS FOR: *Landscape, To Plant, pH 5.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: NONE
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): 3 lb/100 sq feet

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests: Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca			
5.6	10	3.9	0.2	2.7	6.4	13.3	1.9	20.6	48.1	1.8	1.0	0.09

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6108

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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(814) 863-0841 Fax (814) 863-4540

Agricultural Analytical Services Laboratory
The Pennsylvania State University
University Park PA 16802
http://www.aasl.psu.edu

SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43311		MD-BALTIMORE		N1-2	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 5.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: NONE
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): 3 lb/100 sq feet

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.3	8	5.7	0.1	1.6	4.0	11.4	1.2	13.8	35.1	1.0	0.7	0.05

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6109

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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Agricultural Analytical Services Laboratory
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http://www.aasl.psu.edu

SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43312		MD-BALTIMORE		N1-3	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 5.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 5 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.0	18	6.9	0.2	1.4	3.4	11.8	1.6	11.6	28.5	1.1	0.7	0.05

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6110

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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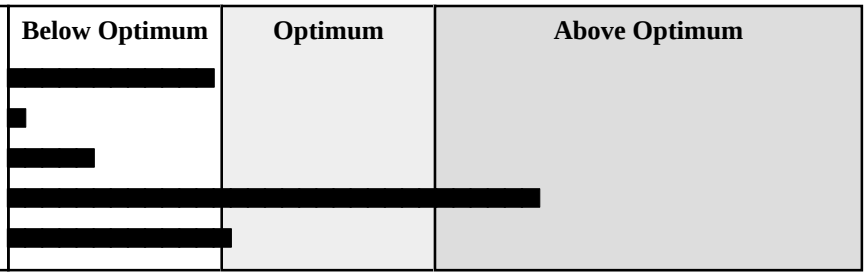
SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43313		MD-BALTIMORE		N1-4	

SOIL NUTRIENT LEVELS



RECOMMENDATIONS FOR: *Landscape, To Plant, pH 5.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 7 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.2	14	8.7	0.2	2.7	7.1	18.7	1.0	14.5	38.0	1.4	0.9	0.31

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6111

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43314		MD-BALTIMORE		N2-1	

SOIL NUTRIENT LEVELS

	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 5.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 7 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.2	4	8.7	0.2	2.1	2.9	13.9	1.2	15.2	21.2	1.8	0.8	0.06

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6112

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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(814) 863-0841 Fax (814) 863-4540

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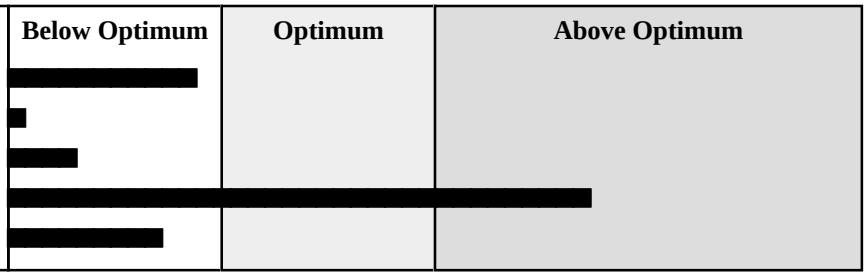
University Park PA 16802
http://www.aasl.psu.edu

SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43316		MD-BALTIMORE		N2-2	

SOIL NUTRIENT LEVELS



RECOMMENDATIONS FOR: *Landscape, To Plant, pH 5.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 5 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
4.8	8	6.3	0.2	3.2	5.1	14.8	1.1	21.7	34.6	1.6	0.7	0.32

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6114

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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The Pennsylvania State University
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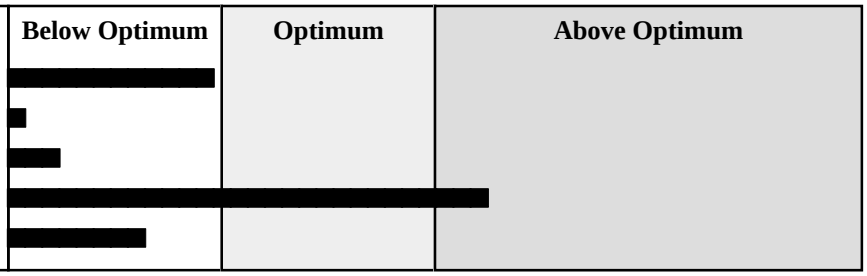
SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43317		MD-BALTIMORE		N2-3	

SOIL NUTRIENT LEVELS



RECOMMENDATIONS FOR: *Landscape, To Plant, pH 5.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 11 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests:		
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
5.1	4	11.7	0.1	2.0	4.8	18.6	0.6	10.9	25.6	1.5	0.9	0.14

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6115

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43318		MD-BALTIMORE		N2-4	

SOIL NUTRIENT LEVELS

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 5.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: NONE
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): 3 lb/100 sq feet

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-5 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:

[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Optional Tests: Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca			
5.9	10	3.9	0.3	2.6	5.4	12.2	2.5	21.0	44.6	2.5	1.5	0.09

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6116

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
05/08/2009	S08-43319		MD-BALTIMORE		S48	

SOIL NUTRIENT LEVELS	Below Optimum	Optimum	Above Optimum
Soil pH			
Phosphate (P_2O_5)			
Potash (K_2O)			
Magnesium (MgO)			
Calcium(CaO)			

RECOMMENDATIONS FOR: *Landscape, To Plant, pH 6.5*

Limestone, Calcium And Magnesium Recommendations

Apply the following quantities of limestone, epsom salts and/or gypsum to the soil to correct soil pH, calcium and magnesium levels.

Calcitic Limestone: 25 lb/100 square feet
(0-3 % Mg)

Magnesium: NONE

Gypsum ($CaSO_4$): NONE

Nitrogen, Phosphate And Potash Recommendations

Apply 1.5 lbs per 100 square feet of 5-10-10 and 1.0 lbs per 100 square feet of 0-46-0.

MESSAGES

The above lime and fertilizer recommendations are for this soil sample and this season only. Nitrogen, phosphate and potash recommendations are for fertilizers containing specific ratios of nitrogen (N), phophate (P_2O_5) and potash (K_2O). As an example 5-10-10 contains 5 % N, 10 % P_2O_5, and 10 % K_2O. If fertilizers with the ratio(s) shown are not available, contact your local garden center or fertilizer supplier for the appropriate substitution.

LABORATORY RESULTS:										Optional Tests:		
[1]pH	[2]P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		[3]Acidity	[2]K	[2]Mg	[2]Ca	[4]CEC	K	Mg	Ca			
4.8	8	12.9	0.2	1.3	3.1	17.5	0.9	7.4	18.0	4.9	0.8	0.13

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Home Garden-1

6117

Comments

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

Use a high quality agricultural ground limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural ground limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100 or above) indicate a pure lime source (greater ability to neutralize soil acidity). The amount of lime recommended on this report is based on an agricultural ground limestone with a CCE of 100. If your lime source is close to or equal to 100, you don't need to adjust the recommended amount. In the event that you use a lime source with a CCE well below 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{\text{(Soil test recommendation in lbs of lime/1000 square feet)}}{\text{CCE of liming material}} \times 100$$

Example Only:
Soil Test Recommendation: 5 lbs limestone /100 square feet
CCE on label: 70 percent

$$\text{Actual liming material required} = \frac{\text{(5 lb of limestone/100 square feet)}}{70} \times 100$$

= 7 lbs liming material/100 square feet

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of MgSO4 (Epsom salts) are recommended, divide the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in MgSO4; ONLY ONE APPLICATION should be needed.

4. Lime and fertilizer recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per 100 square feet to other units or area sizes:
   Pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   Pounds per 100 sq. ft. x 435 = pounds per acre:

5. Amount of sulfur needed to lower soil pH to optimum level.
(See Laboratory Results on front of report for soil pH)

From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)	From Current Soil pH	To Optimum Soil pH	Sulfur (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
	5.5	4.00			
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soil (silt loams) use one third more than the Amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

6. There is no reliable test for evaluating the amount of nitrogen (N) in soils that is available to crops over the growing season. The N recommended is based on the actual N that needs to be supplied annually to ensure optimum crop growth.

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS, MD 21117	

DATE	COUNTY	
05/08/2009	MD-BALTIMORE	

Soil Test Report

Lab ID	Field ID	Nitrogen* %
S08-43270	1	0.08
S08-43271	2	0.10
S08-43272	3	0.09
S08-43273	4	0.08
S08-43274	5	0.06
S08-43275	6	0.07
S08-43276	7	0.04
S08-43277	8	0.07
S08-43278	9	0.07
S08-43279	10	0.17
S08-43280	11	0.09
S08-43281	12	0.07
S08-43282	13	0.07
S08-43283	14	0.17
S08-43284	15	0.10
S08-43285	16	0.15
S08-43286	17	0.09
S08-43287	18	0.12
S08-43288	19	0.07
S08-43289	20	0.09
S08-43291	21	0.07
S08-43292	22	0.13
S08-43293	23	0.14
S08-43294	24	0.08
S08-43295	25	0.10
S08-43296	26	0.10

*Combustion Method

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS, MD 21117	

DATE	COUNTY	
05/08/2009	MD-BALTIMORE	

Soil Test Report

Lab ID	Field ID	Nitrogen* %
S08-43297	27	0.10
S08-43298	28	0.06
S08-43299	29	0.09
S08-43300	30	0.07
S08-43301	31	0.12
S08-43302	32	0.11
S08-43303	33	0.11
S08-43304	34	0.13
S08-43305	35	0.09
S08-43306	36	0.07
S08-43307	37	0.07
S08-43308	38	0.07
S08-43309	39	0.11
S08-43310	N1-1	0.10
S08-43311	N1-2	0.05
S08-43312	N1-3	0.07
S08-43313	N1-4	0.07
S08-43314	N2-1	0.08
S08-43316	N2-2	0.09
S08-43317	N2-3	0.08
S08-43318	N2-4	0.15
S08-43319	S48	0.20

*Combustion Method

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University Park PA 16802
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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
PAULYANNA STECKO AG ANALYTICAL SVC UNIVERSITY PARK , PA 16802	

DATE	COUNTY	
05/08/2009	Centre	

Soil Test Report

Lab ID	Field ID	Nitrogen* %
S08-43315	QC5	

*Combustion Method

PENNSTATE

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Agricultural Analytical Services Laboratory
The Pennsylvania State University
University Park PA 16802
http://www.aasl.psu.edu

SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43270	1	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	40.8	%
Silt:	27.5	%
Clay:	31.8	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	51.6 %
Very Coarse Sand	2.0 - 1.0	18	3.7 %
Coarse Sand	1.0 - 0.5	35	2.3 %
Medium Sand	0.5 - 0.25	60	1.6 %
Fine Sand	0.25 - 0.10	140	3.1 %
Very Fine Sand	0.10 - 0.05	270	4.5 %
Fines	less than 0.05	--	33.3 %

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SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43271	2	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	33.8	%
Silt:	32.0	%
Clay:	34.1	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	32.0 %
Very Coarse Sand	2.0 - 1.0	18	2.8 %
Coarse Sand	1.0 - 0.5	35	2.9 %
Medium Sand	0.5 - 0.25	60	2.1 %
Fine Sand	0.25 - 0.10	140	3.2 %
Very Fine Sand	0.10 - 0.05	270	4.4 %
Fines	less than 0.05	--	52.6 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43272	3	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	42.1	%
Silt:	26.9	%
Clay:	31.1	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	35.7 %
Very Coarse Sand	2.0 - 1.0	18	4.1 %
Coarse Sand	1.0 - 0.5	35	3.3 %
Medium Sand	0.5 - 0.25	60	3.1 %
Fine Sand	0.25 - 0.10	140	4.6 %
Very Fine Sand	0.10 - 0.05	270	4.7 %
Fines	less than 0.05	--	44.4 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43273	4	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	32.2	%
Silt:	26.0	%
Clay:	41.8	%

Soil Textural Class: Clay

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	25.3 %
Very Coarse Sand	2.0 - 1.0	18	4.1 %
Coarse Sand	1.0 - 0.5	35	3.0 %
Medium Sand	0.5 - 0.25	60	2.5 %
Fine Sand	0.25 - 0.10	140	2.1 %
Very Fine Sand	0.10 - 0.05	270	1.7 %
Fines	less than 0.05	--	61.3 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43274	5	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	44.2	%
Silt:	25.1	%
Clay:	30.7	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	34.6 %
Very Coarse Sand	2.0 - 1.0	18	3.3 %
Coarse Sand	1.0 - 0.5	35	2.8 %
Medium Sand	0.5 - 0.25	60	3.3 %
Fine Sand	0.25 - 0.10	140	5.5 %
Very Fine Sand	0.10 - 0.05	270	5.5 %
Fines	less than 0.05	--	45.0 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43275	6	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	40.5	%
Silt:	26.0	%
Clay:	33.5	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	24.1 %
Very Coarse Sand	2.0 - 1.0	18	3.2 %
Coarse Sand	1.0 - 0.5	35	3.1 %
Medium Sand	0.5 - 0.25	60	4.0 %
Fine Sand	0.25 - 0.10	140	7.2 %
Very Fine Sand	0.10 - 0.05	270	5.4 %
Fines	less than 0.05	--	52.9 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43276	7	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	62.2	%
Silt:	17.7	%
Clay:	20.2	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	29.0 %
Very Coarse Sand	2.0 - 1.0	18	2.8 %
Coarse Sand	1.0 - 0.5	35	5.4 %
Medium Sand	0.5 - 0.25	60	15.9 %
Fine Sand	0.25 - 0.10	140	12.3 %
Very Fine Sand	0.10 - 0.05	270	4.7 %
Fines	less than 0.05	--	30.1 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43277	8	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	50.3	%
Silt:	23.3	%
Clay:	26.5	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	43.6 %
Very Coarse Sand	2.0 - 1.0	18	3.6 %
Coarse Sand	1.0 - 0.5	35	3.2 %
Medium Sand	0.5 - 0.25	60	3.9 %
Fine Sand	0.25 - 0.10	140	7.4 %
Very Fine Sand	0.10 - 0.05	270	4.8 %
Fines	less than 0.05	--	33.4 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43278	9	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	50.9	%
Silt:	20.1	%
Clay:	29.0	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	30.7 %
Very Coarse Sand	2.0 - 1.0	18	3.8 %
Coarse Sand	1.0 - 0.5	35	3.4 %
Medium Sand	0.5 - 0.25	60	5.1 %
Fine Sand	0.25 - 0.10	140	9.6 %
Very Fine Sand	0.10 - 0.05	270	5.7 %
Fines	less than 0.05	--	41.6 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43279	10	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	43.0	%
Silt:	29.6	%
Clay:	27.4	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	39.5 %
Very Coarse Sand	2.0 - 1.0	18	5.0 %
Coarse Sand	1.0 - 0.5	35	3.3 %
Medium Sand	0.5 - 0.25	60	2.3 %
Fine Sand	0.25 - 0.10	140	3.7 %
Very Fine Sand	0.10 - 0.05	270	3.5 %
Fines	less than 0.05	--	42.7 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43280	11	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	48.9	%
Silt:	27.7	%
Clay:	23.4	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	51.4 %
Very Coarse Sand	2.0 - 1.0	18	4.2 %
Coarse Sand	1.0 - 0.5	35	3.1 %
Medium Sand	0.5 - 0.25	60	2.1 %
Fine Sand	0.25 - 0.10	140	3.1 %
Very Fine Sand	0.10 - 0.05	270	4.0 %
Fines	less than 0.05	--	32.1 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43281	12	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	33.4	%
Silt:	28.0	%
Clay:	38.7	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	27.7 %
Very Coarse Sand	2.0 - 1.0	18	2.5 %
Coarse Sand	1.0 - 0.5	35	2.4 %
Medium Sand	0.5 - 0.25	60	3.0 %
Fine Sand	0.25 - 0.10	140	5.3 %
Very Fine Sand	0.10 - 0.05	270	4.5 %
Fines	less than 0.05	--	54.6 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43282	13	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	42.4	%
Silt:	23.8	%
Clay:	33.8	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	35.4 %
Very Coarse Sand	2.0 - 1.0	18	3.2 %
Coarse Sand	1.0 - 0.5	35	2.6 %
Medium Sand	0.5 - 0.25	60	3.2 %
Fine Sand	0.25 - 0.10	140	6.8 %
Very Fine Sand	0.10 - 0.05	270	5.0 %
Fines	less than 0.05	--	43.8 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43283	14	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	49.2	%
Silt:	28.7	%
Clay:	22.1	%

Soil Textural Class: Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	42.7 %
Very Coarse Sand	2.0 - 1.0	18	4.2 %
Coarse Sand	1.0 - 0.5	35	2.8 %
Medium Sand	0.5 - 0.25	60	2.3 %
Fine Sand	0.25 - 0.10	140	5.9 %
Very Fine Sand	0.10 - 0.05	270	6.4 %
Fines	less than 0.05	--	35.7 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43284	15	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	43.6	%
Silt:	26.9	%
Clay:	29.5	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	30.3 %
Very Coarse Sand	2.0 - 1.0	18	2.9 %
Coarse Sand	1.0 - 0.5	35	2.2 %
Medium Sand	0.5 - 0.25	60	2.9 %
Fine Sand	0.25 - 0.10	140	8.1 %
Very Fine Sand	0.10 - 0.05	270	6.8 %
Fines	less than 0.05	--	46.8 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43285	16	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	50.0	%
Silt:	24.7	%
Clay:	25.3	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	41.6 %
Very Coarse Sand	2.0 - 1.0	18	5.0 %
Coarse Sand	1.0 - 0.5	35	4.6 %
Medium Sand	0.5 - 0.25	60	3.9 %
Fine Sand	0.25 - 0.10	140	5.8 %
Very Fine Sand	0.10 - 0.05	270	4.4 %
Fines	less than 0.05	--	34.7 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43286	17	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	49.8	%
Silt:	22.5	%
Clay:	27.7	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	38.5 %
Very Coarse Sand	2.0 - 1.0	18	4.3 %
Coarse Sand	1.0 - 0.5	35	3.3 %
Medium Sand	0.5 - 0.25	60	3.4 %
Fine Sand	0.25 - 0.10	140	6.0 %
Very Fine Sand	0.10 - 0.05	270	5.0 %
Fines	less than 0.05	--	39.5 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43287	18	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	46.4	%
Silt:	25.9	%
Clay:	27.8	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	48.3 %
Very Coarse Sand	2.0 - 1.0	18	3.8 %
Coarse Sand	1.0 - 0.5	35	3.3 %
Medium Sand	0.5 - 0.25	60	2.1 %
Fine Sand	0.25 - 0.10	140	2.2 %
Very Fine Sand	0.10 - 0.05	270	3.4 %
Fines	less than 0.05	--	36.9 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43288	19	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	42.9	%
Silt:	21.8	%
Clay:	35.3	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	18.4 %
Very Coarse Sand	2.0 - 1.0	18	3.2 %
Coarse Sand	1.0 - 0.5	35	2.7 %
Medium Sand	0.5 - 0.25	60	4.5 %
Fine Sand	0.25 - 0.10	140	8.8 %
Very Fine Sand	0.10 - 0.05	270	6.0 %
Fines	less than 0.05	--	56.3 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43289	20	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	57.3	%
Silt:	21.9	%
Clay:	20.8	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	35.6 %
Very Coarse Sand	2.0 - 1.0	18	3.4 %
Coarse Sand	1.0 - 0.5	35	3.5 %
Medium Sand	0.5 - 0.25	60	4.1 %
Fine Sand	0.25 - 0.10	140	10.2 %
Very Fine Sand	0.10 - 0.05	270	6.6 %
Fines	less than 0.05	--	36.5 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43291	21	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	53.2	%
Silt:	18.1	%
Clay:	28.7	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	28.5 %
Very Coarse Sand	2.0 - 1.0	18	2.9 %
Coarse Sand	1.0 - 0.5	35	2.7 %
Medium Sand	0.5 - 0.25	60	4.5 %
Fine Sand	0.25 - 0.10	140	8.3 %
Very Fine Sand	0.10 - 0.05	270	5.5 %
Fines	less than 0.05	--	47.5 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43292	22	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	54.7	%
Silt:	19.4	%
Clay:	25.9	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	40.3 %
Very Coarse Sand	2.0 - 1.0	18	7.1 %
Coarse Sand	1.0 - 0.5	35	5.3 %
Medium Sand	0.5 - 0.25	60	3.7 %
Fine Sand	0.25 - 0.10	140	3.8 %
Very Fine Sand	0.10 - 0.05	270	3.4 %
Fines	less than 0.05	--	36.4 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43293	23	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	49.4	%
Silt:	21.0	%
Clay:	29.6	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	52.1 %
Very Coarse Sand	2.0 - 1.0	18	5.2 %
Coarse Sand	1.0 - 0.5	35	3.9 %
Medium Sand	0.5 - 0.25	60	2.9 %
Fine Sand	0.25 - 0.10	140	3.3 %
Very Fine Sand	0.10 - 0.05	270	2.9 %
Fines	less than 0.05	--	29.7 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43294	24	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	51.0	%
Silt:	21.0	%
Clay:	28.0	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	32.2 %
Very Coarse Sand	2.0 - 1.0	18	4.3 %
Coarse Sand	1.0 - 0.5	35	3.6 %
Medium Sand	0.5 - 0.25	60	3.5 %
Fine Sand	0.25 - 0.10	140	5.1 %
Very Fine Sand	0.10 - 0.05	270	4.4 %
Fines	less than 0.05	--	47.0 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43295	25	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	31.5	%
Silt:	29.9	%
Clay:	38.6	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	29.8 %
Very Coarse Sand	2.0 - 1.0	18	2.4 %
Coarse Sand	1.0 - 0.5	35	2.0 %
Medium Sand	0.5 - 0.25	60	1.7 %
Fine Sand	0.25 - 0.10	140	3.7 %
Very Fine Sand	0.10 - 0.05	270	4.7 %
Fines	less than 0.05	--	55.6 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43296	26	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	38.2	%
Silt:	28.2	%
Clay:	33.6	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	17.7 %
Very Coarse Sand	2.0 - 1.0	18	2.8 %
Coarse Sand	1.0 - 0.5	35	2.4 %
Medium Sand	0.5 - 0.25	60	2.7 %
Fine Sand	0.25 - 0.10	140	6.4 %
Very Fine Sand	0.10 - 0.05	270	7.2 %
Fines	less than 0.05	--	60.6 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43297	27	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	38.3	%
Silt:	29.5	%
Clay:	32.2	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	35.0 %
Very Coarse Sand	2.0 - 1.0	18	2.5 %
Coarse Sand	1.0 - 0.5	35	2.3 %
Medium Sand	0.5 - 0.25	60	2.3 %
Fine Sand	0.25 - 0.10	140	5.0 %
Very Fine Sand	0.10 - 0.05	270	5.6 %
Fines	less than 0.05	--	47.4 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43298	28	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	44.6	%
Silt:	23.7	%
Clay:	31.7	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	29.9 %
Very Coarse Sand	2.0 - 1.0	18	1.9 %
Coarse Sand	1.0 - 0.5	35	2.8 %
Medium Sand	0.5 - 0.25	60	5.3 %
Fine Sand	0.25 - 0.10	140	9.1 %
Very Fine Sand	0.10 - 0.05	270	6.6 %
Fines	less than 0.05	--	44.4 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43299	29	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	51.2	%
Silt:	20.0	%
Clay:	28.8	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	33.2 %
Very Coarse Sand	2.0 - 1.0	18	5.9 %
Coarse Sand	1.0 - 0.5	35	4.8 %
Medium Sand	0.5 - 0.25	60	4.6 %
Fine Sand	0.25 - 0.10	140	5.5 %
Very Fine Sand	0.10 - 0.05	270	4.7 %
Fines	less than 0.05	--	41.3 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43300	30	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	50.4	%
Silt:	22.2	%
Clay:	27.5	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	34.8 %
Very Coarse Sand	2.0 - 1.0	18	2.5 %
Coarse Sand	1.0 - 0.5	35	3.4 %
Medium Sand	0.5 - 0.25	60	6.5 %
Fine Sand	0.25 - 0.10	140	8.0 %
Very Fine Sand	0.10 - 0.05	270	5.4 %
Fines	less than 0.05	--	39.5 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43301	31	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	38.6	%
Silt:	29.2	%
Clay:	32.2	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	21.8 %
Very Coarse Sand	2.0 - 1.0	18	2.9 %
Coarse Sand	1.0 - 0.5	35	2.7 %
Medium Sand	0.5 - 0.25	60	3.5 %
Fine Sand	0.25 - 0.10	140	6.0 %
Very Fine Sand	0.10 - 0.05	270	5.8 %
Fines	less than 0.05	--	57.3 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43302	32	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	45.0	%
Silt:	26.6	%
Clay:	28.4	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	20.2 %
Very Coarse Sand	2.0 - 1.0	18	2.8 %
Coarse Sand	1.0 - 0.5	35	3.2 %
Medium Sand	0.5 - 0.25	60	6.0 %
Fine Sand	0.25 - 0.10	140	8.0 %
Very Fine Sand	0.10 - 0.05	270	6.4 %
Fines	less than 0.05	--	53.3 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43303	33	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	46.0	%
Silt:	26.1	%
Clay:	27.9	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	42.0 %
Very Coarse Sand	2.0 - 1.0	18	3.4 %
Coarse Sand	1.0 - 0.5	35	2.9 %
Medium Sand	0.5 - 0.25	60	3.1 %
Fine Sand	0.25 - 0.10	140	4.6 %
Very Fine Sand	0.10 - 0.05	270	3.7 %
Fines	less than 0.05	--	40.2 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43304	34	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	41.1	%
Silt:	30.0	%
Clay:	28.8	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	32.8 %
Very Coarse Sand	2.0 - 1.0	18	1.9 %
Coarse Sand	1.0 - 0.5	35	1.5 %
Medium Sand	0.5 - 0.25	60	1.9 %
Fine Sand	0.25 - 0.10	140	6.2 %
Very Fine Sand	0.10 - 0.05	270	5.5 %
Fines	less than 0.05	--	50.2 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43305	35	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	33.5	%
Silt:	25.3	%
Clay:	41.3	%

Soil Textural Class: Clay

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	31.9 %
Very Coarse Sand	2.0 - 1.0	18	3.5 %
Coarse Sand	1.0 - 0.5	35	2.8 %
Medium Sand	0.5 - 0.25	60	2.3 %
Fine Sand	0.25 - 0.10	140	3.4 %
Very Fine Sand	0.10 - 0.05	270	4.6 %
Fines	less than 0.05	--	51.5 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43306	36	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	49.7	%
Silt:	28.3	%
Clay:	22.0	%

Soil Textural Class: Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	40.2 %
Very Coarse Sand	2.0 - 1.0	18	6.4 %
Coarse Sand	1.0 - 0.5	35	5.9 %
Medium Sand	0.5 - 0.25	60	4.2 %
Fine Sand	0.25 - 0.10	140	4.8 %
Very Fine Sand	0.10 - 0.05	270	4.5 %
Fines	less than 0.05	--	34.1 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43307	37	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	41.2	%
Silt:	33.2	%
Clay:	25.6	%

Soil Textural Class: Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	43.2 %
Very Coarse Sand	2.0 - 1.0	18	3.0 %
Coarse Sand	1.0 - 0.5	35	1.7 %
Medium Sand	0.5 - 0.25	60	1.5 %
Fine Sand	0.25 - 0.10	140	6.3 %
Very Fine Sand	0.10 - 0.05	270	6.3 %
Fines	less than 0.05	--	38.0 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43308	38	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	46.7	%
Silt:	25.9	%
Clay:	27.4	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	41.9 %
Very Coarse Sand	2.0 - 1.0	18	2.9 %
Coarse Sand	1.0 - 0.5	35	3.5 %
Medium Sand	0.5 - 0.25	60	7.2 %
Fine Sand	0.25 - 0.10	140	6.5 %
Very Fine Sand	0.10 - 0.05	270	4.3 %
Fines	less than 0.05	--	33.6 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43309	39	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	40.0	%
Silt:	26.3	%
Clay:	33.6	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	28.1 %
Very Coarse Sand	2.0 - 1.0	18	3.8 %
Coarse Sand	1.0 - 0.5	35	2.6 %
Medium Sand	0.5 - 0.25	60	2.7 %
Fine Sand	0.25 - 0.10	140	5.0 %
Very Fine Sand	0.10 - 0.05	270	4.6 %
Fines	less than 0.05	--	53.2 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43310	N1-1	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	44.7	%
Silt:	23.8	%
Clay:	31.5	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	22.0 %
Very Coarse Sand	2.0 - 1.0	18	4.0 %
Coarse Sand	1.0 - 0.5	35	4.1 %
Medium Sand	0.5 - 0.25	60	6.3 %
Fine Sand	0.25 - 0.10	140	7.6 %
Very Fine Sand	0.10 - 0.05	270	5.0 %
Fines	less than 0.05	--	51.1 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43311	N1-2	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	39.3	%
Silt:	24.7	%
Clay:	36.0	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	27.9 %
Very Coarse Sand	2.0 - 1.0	18	2.9 %
Coarse Sand	1.0 - 0.5	35	2.2 %
Medium Sand	0.5 - 0.25	60	4.1 %
Fine Sand	0.25 - 0.10	140	5.6 %
Very Fine Sand	0.10 - 0.05	270	4.2 %
Fines	less than 0.05	--	53.2 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43312	N1-3	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	42.7	%
Silt:	24.4	%
Clay:	32.9	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	29.4 %
Very Coarse Sand	2.0 - 1.0	18	5.4 %
Coarse Sand	1.0 - 0.5	35	3.9 %
Medium Sand	0.5 - 0.25	60	4.8 %
Fine Sand	0.25 - 0.10	140	4.6 %
Very Fine Sand	0.10 - 0.05	270	3.5 %
Fines	less than 0.05	--	48.3 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43313	N1-4	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	39.4	%
Silt:	24.8	%
Clay:	35.8	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	35.7 %
Very Coarse Sand	2.0 - 1.0	18	3.9 %
Coarse Sand	1.0 - 0.5	35	2.9 %
Medium Sand	0.5 - 0.25	60	3.7 %
Fine Sand	0.25 - 0.10	140	4.2 %
Very Fine Sand	0.10 - 0.05	270	3.5 %
Fines	less than 0.05	--	46.2 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43314	N2-1	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	33.9	%
Silt:	27.8	%
Clay:	38.3	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	31.3 %
Very Coarse Sand	2.0 - 1.0	18	2.7 %
Coarse Sand	1.0 - 0.5	35	2.3 %
Medium Sand	0.5 - 0.25	60	2.2 %
Fine Sand	0.25 - 0.10	140	3.0 %
Very Fine Sand	0.10 - 0.05	270	4.1 %
Fines	less than 0.05	--	54.5 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43316	N2-2	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	42.2	%
Silt:	23.8	%
Clay:	34.1	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	28.4 %
Very Coarse Sand	2.0 - 1.0	18	3.5 %
Coarse Sand	1.0 - 0.5	35	2.9 %
Medium Sand	0.5 - 0.25	60	3.3 %
Fine Sand	0.25 - 0.10	140	4.3 %
Very Fine Sand	0.10 - 0.05	270	4.0 %
Fines	less than 0.05	--	53.6 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43317	N2-3	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	45.3	%
Silt:	24.1	%
Clay:	30.6	%

Soil Textural Class: Sandy Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	28.1 %
Very Coarse Sand	2.0 - 1.0	18	3.9 %
Coarse Sand	1.0 - 0.5	35	3.7 %
Medium Sand	0.5 - 0.25	60	5.7 %
Fine Sand	0.25 - 0.10	140	6.2 %
Very Fine Sand	0.10 - 0.05	270	5.1 %
Fines	less than 0.05	--	47.1 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43318	N2-4	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	40.8	%
Silt:	24.7	%
Clay:	34.5	%

Soil Textural Class: Clay Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	39.6 %
Very Coarse Sand	2.0 - 1.0	18	3.3 %
Coarse Sand	1.0 - 0.5	35	2.7 %
Medium Sand	0.5 - 0.25	60	2.6 %
Fine Sand	0.25 - 0.10	140	2.8 %
Very Fine Sand	0.10 - 0.05	270	2.8 %
Fines	less than 0.05	--	46.4 %

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Lab ID	CUSTOMER ID	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43319	S48	05/04/2009		MD-BALTIMORE

Particle Size Analysis

Sand:	46.8	%
Silt:	30.0	%
Clay:	23.2	%

Soil Textural Class: Loam

Sand Sieve Analysis

Soil Seperate	Diameter Range millimeters	US Standard Sieve No.	%
Gravel	2.0 and larger	10	26.7 %
Very Coarse Sand	2.0 - 1.0	18	5.1 %
Coarse Sand	1.0 - 0.5	35	2.2 %
Medium Sand	0.5 - 0.25	60	2.1 %
Fine Sand	0.25 - 0.10	140	6.7 %
Very Fine Sand	0.10 - 0.05	270	5.9 %
Fines	less than 0.05	--	51.3 %

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43270	1		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
110.74	2.45	29.87

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
Sugar maple	Norway spruce
Northern red oak	Black cherry
Quaking Aspen	Black birch
White spruce	Striped maple
Red spruce	White pine
Black oak	Red pine
	Short leaf pine
	Pitch pine
	American Beech
	Japanese larch

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43271	2		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
107.94	3.54	20.18

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
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Northern red oak	Black cherry
Quaking Aspen	Black birch
White spruce	Striped maple
Red spruce	White pine
Black oak	Red pine
	Short leaf pine
	Pitch pine
	American Beech
	Japanese larch

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43272	3		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
157.64	0.10	1011.82

*0.01 M $SrCl_2$ extract

1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
Sugar maple	Norway spruce
Northern red oak	Black cherry
Quaking Aspen	Black birch
White spruce	Striped maple
Red spruce	White pine
Black oak	Red pine
	Short leaf pine
	Pitch pine
	American Beech
	Japanese larch

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43273	4		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
131.52	2.24	38.76

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
Sugar maple	Norway spruce
Northern red oak	Black cherry
Quaking Aspen	Black birch
White spruce	Striped maple
Red spruce	White pine
Black oak	Red pine
	Short leaf pine
	Pitch pine
	American Beech
	Japanese larch

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43274	5		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
94.57	0.03	1831.75

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
Sugar maple	Norway spruce
Northern red oak	Black cherry
Quaking Aspen	Black birch
White spruce	Striped maple
Red spruce	White pine
Black oak	Red pine
	Short leaf pine
	Pitch pine
	American Beech
	Japanese larch

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43275	6		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
104.14	0.45	152.73

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
Sugar maple	Norway spruce
Northern red oak	Black cherry
Quaking Aspen	Black birch
White spruce	Striped maple
Red spruce	White pine
Black oak	Red pine
	Short leaf pine
	Pitch pine
	American Beech
	Japanese larch

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43276	7		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
91.26	0.24	255.00

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
Sugar maple	Norway spruce
Northern red oak	Black cherry
Quaking Aspen	Black birch
White spruce	Striped maple
Red spruce	White pine
Black oak	Red pine
	Short leaf pine
	Pitch pine
	American Beech
	Japanese larch

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43277	8		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
141.85	0.04	2129.37

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
Sugar maple	Norway spruce
Northern red oak	Black cherry
Quaking Aspen	Black birch
White spruce	Striped maple
Red spruce	White pine
Black oak	Red pine
	Short leaf pine
	Pitch pine
	American Beech
	Japanese larch

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43278	9		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
162.06	0.01	7556.82

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
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Northern red oak	Black cherry
Quaking Aspen	Black birch
White spruce	Striped maple
Red spruce	White pine
Black oak	Red pine
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43279	10		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
220.98	0.01	15026.73

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
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White spruce	Striped maple
Red spruce	White pine
Black oak	Red pine
	Short leaf pine
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	American Beech
	Japanese larch

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43280	11		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
122.21	0.05	1515.56

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

Relatively Al Sensitive	Relatively Al Insensitive
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43281	12		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
105.75	1.12	62.34

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

Relatively Al Sensitive	Relatively Al Insensitive
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43282	13		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
105.18	0.27	261.90

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43283	14		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
240.15	0.13	1204.60

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
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Red spruce	White pine
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43284	15		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
171.59	0.01	11342.11

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
Sugar maple	Norway spruce
Northern red oak	Black cherry
Quaking Aspen	Black birch
White spruce	Striped maple
Red spruce	White pine
Black oak	Red pine
	Short leaf pine
	Pitch pine
	American Beech
	Japanese larch

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43285	16		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
198.14	0.01	13097.37

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
Sugar maple	Norway spruce
Northern red oak	Black cherry
Quaking Aspen	Black birch
White spruce	Striped maple
Red spruce	White pine
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43286	17		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
133.97	0.01	6363.62

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Relatively Al Sensitive	Relatively Al Insensitive
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43287	18		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
70.28	0.01	4645.50

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43288	19		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
120.97	0.05	1623.90

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43289	20		05/04/2009	05/06/2009	

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
97.08	0.54	119.55

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43291	21		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
95.05	0.17	365.49

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Relatively Al Sensitive	Relatively Al Insensitive
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43292	22		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
196.05	3.97	32.62

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Relatively Al Sensitive	Relatively Al Insensitive
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43293	23		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
548.24	4.70	77.17

*0.01 M $SrCl_2$ extract

1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Relatively Al Sensitive	Relatively Al Insensitive
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43294	24		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
127.73	0.00	47219.31

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
Sugar maple	Norway spruce
Northern red oak	Black cherry
Quaking Aspen	Black birch
White spruce	Striped maple
Red spruce	White pine
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	Short leaf pine
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43295	25		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
115.10	1.61	47.33

*0.01 M $SrCl_2$ extract

1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Relatively Al Sensitive	Relatively Al Insensitive
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43296	26		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
106.35	4.30	16.35

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Relatively Al Sensitive	Relatively Al Insensitive
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43297	27		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
86.26	0.01	5701.76

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43298	28		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
152.06	0.10	1045.34

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43299	29		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
123.67	0.18	443.45

*0.01 M $SrCl_2$ extract

1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43300	30		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
200.53	0.25	539.32

*0.01 M $SrCl_2$ extract

1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43301	31		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
117.27	0.57	136.80

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43302	32		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
157.87	0.04	2474.00

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
Sugar maple	Norway spruce
Northern red oak	Black cherry
Quaking Aspen	Black birch
White spruce	Striped maple
Red spruce	White pine
Black oak	Red pine
	Short leaf pine
	Pitch pine
	American Beech
	Japanese larch

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43303	33		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
124.17	0.51	159.65

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

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Honey locust	Chestnut oak
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43304	34		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
197.14	0.05	2418.31

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
Sugar maple	Norway spruce
Northern red oak	Black cherry
Quaking Aspen	Black birch
White spruce	Striped maple
Red spruce	White pine
Black oak	Red pine
	Short leaf pine
	Pitch pine
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43305	35		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
175.19	0.04	3103.98

*0.01 M $SrCl_2$ extract

1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

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Red spruce	White pine
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43306	36		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
158.64	0.01	7822.60

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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	Short leaf pine
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43307	37		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
129.12	1.12	75.93

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43308	38		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
178.55	0.01	11802.43

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Honey locust	Chestnut oak
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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43309	39		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
163.52	0.03	4140.68

*0.01 M $SrCl_2$ extract

1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43310	N1-1		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
161.59	0.04	2844.76

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43311	N1-2		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
135.58	0.25	363.58

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43312	N1-3		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
127.44	1.73	48.74

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43313	N1-4		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
231.09	0.01	19875.04

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43314	N2-1		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
101.63	0.49	137.50

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43316	N2-2		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
170.73	0.09	1272.92

*0.01 M $SrCl_2$ extract

1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43317	N2-3		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
158.88	0.03	3595.27

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43318	N2-4		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
172.57	0.00	44045.38

*0.01 M $SrCl_2$ extract

1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

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SARAH ROBERTS BIOHABITATS INC. 2081 CLIPPER PARK RD. OWINGS MILLS MD 21117	

Lab ID	SAMPLE ID	SERIAL #	DATE RECEIVED	DATE COMPLETE	COUNTY
S08-43319	S48		05/04/2009	05/06/2009	Md-baltimore

Al Stress Test Analytical Report

Results* (dry weight basis)

Calcium (Ca) (mg/kg)	Aluminum (Al) (mg/kg)	Ca:Al Ratio (Molar)
152.42	1.12	90.05

*0.01 M $SrCl_2$ extract
1:1 Soil:Extract Ratio

Comments

The molar ratio of calcium (Ca) to aluminum (Al) as indicated by the test results is greater than 1.0. There is a relatively small risk that aluminum in the soil is at toxic levels. However, seedlings of certain very sensitive species (sugar maple, honey locust, aspen) may still be at risk. Where sugar maple and aspen are to be regenerated with seedlings, a ratio of at least 3.0 is recommended.

The table below lists common eastern forest trees according to their general sensitivity to aluminum. If the species of interest to you is not listed, no information is available for that species. This table is subject to revision as new research information becomes available.

Relatively Al Sensitive	Relatively Al Insensitive
Honey locust	Chestnut oak
Sugar maple	Norway spruce
Northern red oak	Black cherry
Quaking Aspen	Black birch
White spruce	Striped maple
Red spruce	White pine
Black oak	Red pine
	Short leaf pine
	Pitch pine
	American Beech
	Japanese larch

APPENDIX G

WATER SAMPLING TEST RESULTS

PENNSTATE

Agricultural Analytical Services Laboratory
College of Agricultural Sciences
The Pennsylvania State University
University Park, PA 16802

Phone: 814-863-0841
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Analysis Report For:	Copy To:
Sarah Roberts Biohabitats 2081 Clipper Park RD BALTIMORE MD 21211	RECEIVED APR 27 2009 BY:

LAB ID:	SAMPLE ID:	DATE SAMPLED:	REPORT DATE:	SAMPLE SOURCE	COUNTY
W01761	NE Pond	4/13/2009	4/23/2009	Lake or pond	MD-BALTIMORE

WATER ANALYSIS REPORT
Turf Irrigation (WT02)

Analysis		Result	Units	Normal Range	Upper Limit
pH		7.0	-	6.0 - 7.0	8.5
Total Alkalinity as $CaCO_3$		22	mg/L	80 - 100	-
Bicarbonates (HCO_3)		27	mg/L	< 100	120
Carbonates (CO_3)		0	mg/L	< 10	15
Residual Sodium Carbonate (RSC)		0.1	meq/L	< 1.25	2.5
Hardness as $CaCO_3$		41	mg/L	-	-
Electrical Conductivity (EC)		0.1	mmhos/cm	0.31 - 0.78	3.1
Total Dissolved Solids (TDS)		73	mg/L	200 - 500	2000
Calcium (Ca)		11.16	mg/L	20 - 60	80
Magnesium (Mg)		3.28	mg/L	10 - 25	35
Sodium (Na)		4.25	mg/L	< 70	70
Sodium Absorbtion Ratio (SAR)		0.29	-	< 3	9
Chloride (Cl)		7.30	mg/L	< 100	355
Boron (B)	<	0.05	mg/L	< 2.0	2.0
Nitrate-Nitrogen (NO_3-N)	<	0.50	mg/L	5 - 50	100
Ammonium-Nitrogen (NH_4-N)	<	1.00	mg/L	2 - 75	100
Phosphorus (P)	<	0.03	mg/L	0.1 - 0.4	0.8
Potassium (K)		2.80	mg/L	5 - 20	30
Sulfur (as SO_4)		6.25	mg/L	10 - 30	60
Iron (Fe)		0.33	mg/L	2.4 - 4.0	5.0
Manganese(Mn)		0.02	mg/L	< 0.2	0.2
Copper (Cu)	<	0.01	mg/L	< 0.2	0.2
Molybdenum (Mo)	<	0.003	mg/L	< 0.1	0.1
Zinc (Zn)	<	0.01	mg/L	< 0.3	2.0

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Analysis Report For:	Copy To:
Sarah Roberts Biohabitats 2081 Clipper RD BALTIMORE MD 21211	

LAB ID:	SAMPLE ID:	DATE SAMPLED:	REPORT DATE:	SAMPLE SOURCE	COUNTY
W01762	SE POND 1	4/13/09	4/23/2009	Lake or pond	MD-BALTIMORE

WATER ANALYSIS REPORT
Turf Irrigation (WT02)

Analysis		Result	Units	Normal Range	Upper Limit
pH		6.8	-	6.0 - 7.0	8.5
Total Alkalinity as $CaCO_3$	<	26	mg/L	80 - 100	-
Bicarbonates (HCO_3)	<	32	mg/L	< 100	120
Carbonates (CO_3)		0	mg/L	< 10	15
Residual Sodium Carbonate (RSC)		0.1	meq/L	< 1.25	2.5
Hardness as $CaCO_3$		38	mg/L	-	-
Electrical Conductivity (EC)		0.1	mmhos/cm	0.31 - 0.78	3.1
Total Dissolved Solids (TDS)		65	mg/L	200 - 500	2000
Calcium (Ca)		9.94	mg/L	20 - 60	80
Magnesium (Mg)		3.23	mg/L	10 - 25	35
Sodium (Na)		2.99	mg/L	< 70	70
Sodium Absorbtion Ratio (SAR)		0.21	-	< 3	9
Chloride (Cl)		5.30	mg/L	< 100	355
Boron (B)	<	0.05	mg/L	< 2.0	2.0
Nitrate-Nitrogen (NO_3-N)	<	0.50	mg/L	5 - 50	100
Ammonium-Nitrogen (NH_4-N)	<	0.98	mg/L	2 - 75	100
Phosphorus (P)		0.03	mg/L	0.1 - 0.4	0.8
Potassium (K)		2.35	mg/L	5 - 20	30
Sulfur (as SO_4)		7.87	mg/L	10 - 30	60
Iron (Fe)		0.99	mg/L	2.4 - 4.0	5.0
Manganese(Mn)		0.01	mg/L	< 0.2	0.2
Copper (Cu)	<	0.01	mg/L	< 0.2	0.2
Molybdenum (Mo)	<	0.003	mg/L	< 0.1	0.1
Zinc (Zn)	<	0.01	mg/L	< 0.3	2.0

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LAB ID:	SAMPLE ID:	DATE SAMPLED:	REPORT DATE:	SAMPLE SOURCE	COUNTY
W01763	SE Pond 2	4/13/2009	4/23/2009	Lake or pond	MD-BALTIMORE

WATER ANALYSIS REPORT
Turf Irrigation (WT02)

Analysis		Result	Units	Normal Range	Upper Limit
pH		6.7	-	6.0 - 7.0	8.5
Total Alkalinity as $CaCO_3$	<	25	mg/L	80 - 100	-
Bicarbonates (HCO_3)	<	31	mg/L	< 100	120
Carbonates (CO_3)		0	mg/L	< 10	15
Residual Sodium Carbonate (RSC)		0.1	meq/L	< 1.25	2.5
Hardness as $CaCO_3$		41	mg/L	-	-
Electrical Conductivity (EC)		0.1	mmhos/cm	0.31 - 0.78	3.1
Total Dissolved Solids (TDS)		67	mg/L	200 - 500	2000
Calcium (Ca)		10.33	mg/L	20 - 60	80
Magnesium (Mg)		3.77	mg/L	10 - 25	35
Sodium (Na)		2.69	mg/L	< 70	70
Sodium Absorbtion Ratio (SAR)		0.18	-	< 3	9
Chloride (Cl)		5.30	mg/L	< 100	355
Boron (B)	<	0.05	mg/L	< 2.0	2.0
Nitrate-Nitrogen (NO_3-N)	<	0.50	mg/L	5 - 50	100
Ammonium-Nitrogen (NH_4-N)	<	0.99	mg/L	2 - 75	100
Phosphorus (P)		0.03	mg/L	0.1 - 0.4	0.8
Potassium (K)		2.32	mg/L	5 - 20	30
Sulfur (as SO_4)		8.36	mg/L	10 - 30	60
Iron (Fe)		0.82	mg/L	2.4 - 4.0	5.0
Manganese(Mn)		0.02	mg/L	< 0.2	0.2
Copper (Cu)	<	0.01	mg/L	< 0.2	0.2
Molybdenum (Mo)	<	0.003	mg/L	< 0.1	0.1
Zinc (Zn)	<	0.01	mg/L	< 0.3	2.0