RUTGERS
New Jersey Agricultural Experiment Station

Soil Testing Laboratory
Rutgers, The State University
ASB II
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New Brunswick, NJ 08901-8554

Soil Test Report

Lab #: 2023- 9474

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Date Received: 2023-04-10
Date Reported: 2023-04-19

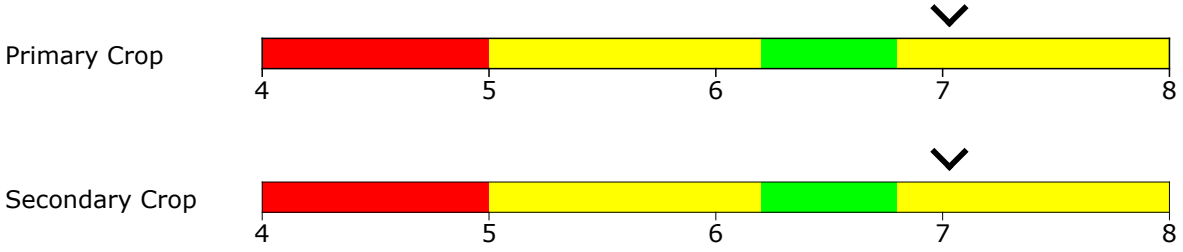
Referred To: Rutgers Cooperative Ext. of Mercer County
(609)989-6830

Crop or Plant
NewHome: vegetable garden, annual (primary)
Established Home fruit: strawberry (secondary)

Sample ID: Lakeside Garden

Results and Interpretations

pH: 7.03 Slightly alkaline; above optimum pH for most plants.

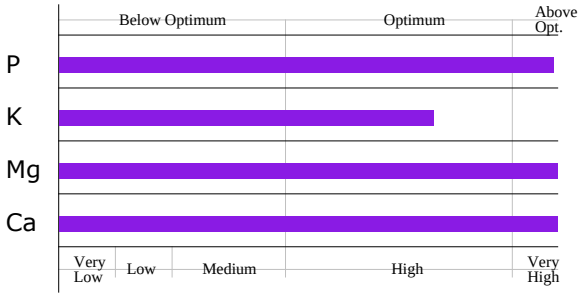


Macronutrients (pounds per acre)

by Mehlich 3 extraction

Phosphorus:	149	(Above Optimum)
Potassium:	232	(Optimum)
Magnesium:	764	(Above Optimum)
Calcium:	*	(Above Optimum)

* Excessive, out of calibration range



Micronutrients (parts per million)

Zinc(Zn)	Copper(Cu)	Manganese(Mn)	Boron(B)	Iron(Fe)	Sulfur(S)
15.63 (Adequate)	4.57 (Adequate)	49.81 (High)	3.00 (Adequate)	325.34 (High)	12.21 (Medium)

Special Tests Results

No special test data available

pH, Calcium, and Magnesium Recommendations

Primary Crop - New Home: vegetable garden, annual

The soil pH is slightly higher than the optimum range of 6.20 to 6.80 for the growth of most vegetable garden, annual, but no correction is needed. Do not apply any limestone, compost, or wood ashes to the area. The pH will decrease naturally.

Secondary Crop - Established Home fruit: strawberry

The soil pH is slightly higher than the optimum range of 6.20 to 6.80 for the growth of most strawberry, but no correction is needed. Do not apply any limestone, compost, or wood ashes to the area. The pH will decrease naturally.

Fertilizer Recommendations

Primary Crop - New Home: vegetable garden, annual

BEFORE PLANTING (typically May; the average date for the last killing spring frost is May 4 in North Jersey, up to 4 weeks earlier in South Jersey.)
Target ratio for fertilizer product is: 2:0:1 ,which represents the fertilizer?s relative amounts of nitrogen (N), phosphorus as P_2O_5, and potassium as K_2O.

The estimated nitrogen (N) need of this crop/planting at spring planting is 2 pounds per 1000 square feet.

DO THIS: Uniformly apply fertilizer(s) with N:P:K ratio indicated above to achieve 2 pound Nitrogen per 1000 square feet. Spread fertilizer uniformly on the soil surface and then mix in to 4 inches depth by tilling or turning with shovel.

MIDSEASON: Approximately 1 month after transplanting seedlings, additional nitrogen may be needed. See Rutgers Cooperative Extension Fact Sheet FS626 for more specific instructions for individual crops.

Annual vegetables often require a supplement of nutrients at this very demanding stage of crop growth, except in high-organic matter soils.

DO THIS: Uniformly apply fertilizer(s) with N:P:K ratio of 4:1:1 to achieve 1 pound Nitrogen per 1000 square feet. Sidedress this fertilizer (spread uniformly on the soil surface alongside crop rows). Do not apply more N than prescribed, since that will favor vegetative growth over reproduction (production of fruit).

WHAT ABOUT NEXT YEAR?

The fertilizer prescription above is intended to bring soil nutrients to optimal or near-optimal conditions, and subsequent management recommendations are intended to maintain soil nutrients levels near optimum. The best nutrient ratio for maintenance of soil fertility beyond 2 years is best determined by another soil test.

DO THIS: apply composted plant residue (and kitchen scraps) to recycle nutrients back to the garden soil. At next planting, use fertilizer with N:P:K ratio of 2:1:2 at a rate to achieve 2 pounds Nitrogen per 1000 square feet, and supplement at midseason with 1:0:0 fertilizer (nitrogen only, as above) to achieve 1 pound Nitrogen per 1000 square feet.

Secondary Crop - Established Home fruit: strawberry

REVOVATION FOR NEXT YEAR'S CROP BEGINS AFTER MID-SUMMER HARVEST.

Target ratio for fertilizer product is: 1:0:1 ,which represents the fertilizer?s relative amounts of nitrogen (N), phosphorus as P_2O_5, and potassium as K_2O.

Rejuvenate the planting after harvest by clipping leaves and trimming plants back, narrowing rows to 12 inches. This will minimize disease and insect pressure and assure larger fruit. Fertilize to restore soil nutrients.

DO THIS: Using fertilizer with the indicated ratio of nutrients, sidedress along rows of trimmed plants at a rate to achieve 0.1 pound Nitrogen per 100 square feet.

IN MID-AUGUST:

Fertilize again to prepare plants for overwintering and restore soil nutrients.

DO THIS: Apply fertilizer with N:P:K ratio of 1-2-2 to achieve Nitrogen rate of 0.1 pound per 100 square feet. For example, you would need 2 pounds of 5-10-10 for every 100 square-feet area.

IN FEBRUARY OR EARLY MARCH:

DO THIS: Using fertilizer with 2-1-1 ratio of nutrients, sidedress along rows of plants at a rate to achieve 0.1 pound Nitrogen per 100 square feet.

WHAT ABOUT NEXT YEAR?

Following the recommended rates of fertilizer application, nutrient level should be at or near to optimal levels.

Subsequent fertilization for established strawberry plants should be with 2-1-1 ratio fertilizers at a rate of 0.05 to 0.075 pound Nitrogen per 100 square feet in February/March, and 0.1 pound Nitrogen per 100 square feet in August.

How do I find the proper fertilizer product?

For help finding appropriate fertilizers and rates, consult the Rutgers Soil Testing Laboratory website: https://itsappserver.sebs.rutgers.edu/FertProducts/. The website lists commercially available products according to their nutrient analyses to assist you with product selection and calculation of amount required.

Select a fertilizer that has a nutrient grade (also known as guaranteed minimum analysis) the same as or a multiple of the values recommended, or select a close match to that ratio. When no single fertilizer product matches or approximates the recommended N:P_2O_5:K_2O nutrient ratio, it will be necessary to use two or more fertilizers to reach the correct balance of nutrients. The proper amount of fertilizer to apply in a single application depends on the actual fertilizer grade of the fertilizer product selected, the total area (square feet) to be treated, and the total number of fertilizer applications to be made throughout the year.

Micronutrient Statements

Zinc does not appear to be a limiting factor. For information about zinc in soil for plant nutrition, see FS721.

Copper does not appear to be a limiting factor. As with most other micronutrients, copper availability is related to soil pH. Do not over-lime. For more information about soil copper, see FS720.

Manganese may be toxic to sensitive crops when grown on low pH soil. Adding lime to the soil raises the pH and decreases manganese toxicity. Liming is generally not recommended for acid-loving plants, which are more tolerant of high levels of manganese. In excessive amounts, soil manganese can cause plant damage. This occurs primarily in low pH soil. Lime soil as recommended to decrease availability of manganese to plants. Avoid fertilizers that contain manganese. See FS973 for more information.

Boron would not be a limiting factor for most plants. Plant types differ in their requirement for boron, however; certain fruit, vegetables, and field crops have greater need for boron (up to 0.75 ppm). For more information, see FS873.

Plant availability to iron is highly dependent on soil pH. Although soil iron appears plentiful, high soil pH could limit its availability. On the other hand, plant damage due to iron toxicity, though not common, could occur at low soil pH (acidic soil). Maintain soil pH in the optimum range as described in Recommendations. See FS971 for more information.

Although soil tests for sulfur fertility must be interpreted with many considerations in mind, the soil test value suggests potential for sulfur deficiency within the soil depth sampled for certain crops at the time the sample was taken. Agronomic crops, legumes, and vegetables in the Brassicaceae (cabbage) family or Allium (onion) genus are most likely to express sulfur deficiencies. For these crops, response to sulfur fertilization is likely. Some N-P-K fertilizers also contain sulfur that will meet most plants' requirements. Organic matter decomposition is the natural source of plant-available soil sulfur (sulfate ion). Sulfate is susceptible to leaching, and so sandy, low organic matter-soils are most prone to sulfur deficiency. Deficiencies may be time- and weather-dependent, such as in spring when cold soil limits decomposition and leaching from frequent rainfall is most likely. However, deep-rooted vegetation may have access to sulfur in subsoil/depths greater than sample taken; a separate sample from the subsoil would help assess need for added S. For long-term fertility, incorporate best management practices to maintain adequate organic matter content in soil. For additional information on sulfur fertility, see Rutgers Cooperative Extension bulletin E365.

Comments:

Find Rutgers Cooperative Extension Fact Sheets at www.njaes.rutgers.edu/pubs

Soil Program 2023
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