



## **Starting a New Vegetable Garden in Absence of a Current Soil Fertility Test Report**

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Home gardening is a great family activity and a secure source of local healthy food. With the current COVID-19 pandemic and stay-home situation, we expect a resurgence of interest in starting a garden and producing home-grown vegetables. In normal times, Rutgers Cooperative Extension would strongly encourage new gardeners to begin by collecting a soil sample from the proposed garden plot area before planting. In normal times, soil samples should be sent off to the Rutgers Soil Testing Laboratory. <https://njaes.rutgers.edu/soil-testing-lab/>

However, despite the temporary shutdown of the Rutgers Soil Testing Lab due to the COVID-19 pandemic, we do not want to discourage gardening. The purpose here is to provide some guidance with regards to liming, soil pH management, and reasonable application rates of appropriate fertilizers. Once the Rutgers lab re-opens for soil testing, we will encourage everyone to have their garden soil fertility tested.

Long-time successful gardeners should continue with soil fertility practices and amendments that have served them well in past years. If you have old reports on file, they can still provide some guidance. Soil fertility levels and soil pH do not normally change very fast over a one- to three-year timeframe.

Aside from soil conditions, vegetable garden plots should be located away from large trees and ideally where it is sunny most of the day.

If a new garden plot is being established where it is currently a lawn, the growth quality of the grass can give some indication of current soil fertility. If the lawn area is thick green and healthy-looking, this is a sign of good soil fertility. If the lawn area that is to be turned into a vegetable garden plot has been well-managed, fertilized, and limed as needed for a healthy lawn, it is fair to assume that the soil is fertile and the pH level is satisfactory for a vegetable garden.

In this case of lawns, the main challenge will be killing the sod and transitioning the site to vegetable production. For small garden plots, sod can be removed by skimming off a thin layer of grass and roots with a shovel or hoe. Set this material aside or add it to a compost pile. Another approach to killing sod is to leave it in place and cover it with a layer of mulch. Placing cardboard or layers of newspaper under the mulch will help prevent new grass plants from emerging through the mulch.

If the chosen garden site currently has vegetation or lawn that looks distressed, this may be a sign of poor soil fertility or excessive soil acidity. Such conditions can be challenging to correct in a single growing season. In this situation, consider growing vegetables in raised beds or container gardening.

Use a blend of 1-part compost to 3-parts mineral soil to fill the raised beds, or purchase potting soil mix for containers.

One of the most important reasons to run a soil test before new garden establishment is to have the soil pH level measured. New Jersey soils are naturally acidic, and the degree of acidity depends on past treatment. Most vegetable crops grow best when the soil pH is just slightly acid or with a pH near 6.5. It is risky to apply limestone amendment to soil without knowing soil pH in advance. But if there is reason to suspect that the soil is rather acidic, such as no known recent applications of limestone, it may be advisable to apply modest amounts of liming material. Reasonable application rates for loamy soils in Northern New Jersey may be 50 lbs./1000 sq. ft. and for sandy soils in Southern New Jersey 25 lbs./1000 sq. ft. In the absence of a soil test recommendation, use a high-magnesium or dolomite type limestone to ensure that both calcium and magnesium are supplied to the soil.

Applying and mixing good-quality compost into garden soil prior to planting is one of the safest and easiest ways to ensure gardening success on new plots. Well-made compost supplies a modest amount of every essential plant nutrient and improves soil physical quality. Also, compost helps plant roots better tolerate soil pH values outside of the optimum range. On new garden sites, tilling a 1 to 3 inch layer of compost into the soil is recommended. Using compost to enhance mineral soil will generally supply enough of the major and minor plant nutrients.

At an early stage of plant growth during the growing season, additional plant nutrients may be supplied with modest applications of commercial fertilizers. Nitrogen is often the most limiting nutrient, and its application rate is not based on a soil test. Need for this nutrient depends on the type of vegetable crop and the level of organic matter in the soil. Experienced gardeners can look at plant growth, color, and vigor and use visual cues to determine if crops are growing as should be expected or if whether supplemental fertilizer is needed. Vegetable plants that lack dark green leaf color and are slow to grow may need a boost from a modest application of nitrogen fertilizer.

Wise master gardeners know that applying fertilizer amounts beyond the needs of the crop can do more harm than good. Excessive nitrogen encourages vegetative growth but may delay the onset of flowering and fruit production, for example. Lush young plant tissue may be susceptible to disease or insect damage. Fertilizer burn from excess soluble fertilizer is another hazard.

During this time period while the Rutgers Soil Test Laboratory is closed, soil testing services are still available at other Land Grant Universities and some private labs. When choosing an alternate lab, we strongly recommend that it be one that uses the Mehlich-3 soil test method; the same as used at Rutgers. This is important since, Rutgers Cooperative Extension agents and program associates are best prepared to provide interpretation and guidance for the Mehlich-3 method, which was designed and developed for fertility testing on soils of the Eastern USA. The University of Delaware and Penn State University both use the Mehlich-3 method; however, they express the results in units differently than the Rutgers Soil Test Report. For example, Penn State reports soil test values for P and K in ppm whereas Rutgers reports these in terms of lbs./acre. A simple conversion of ppm X 2 converts these values to lbs./acre. But even without doing the math conversions, the soil fertility categories as described as "below optimum", "optimum", or "above optimum" have very similar interpretations to that provided by Rutgers Cooperative Extension.

Watch for announcements on the Rutgers Soil Testing Laboratory webpage <https://njaes.rutgers.edu/soil-testing-lab/> about when the lab will re-open. Assuming the lab is open by the fall, that would a great time to take a garden sample for soil fertility testing. With the soil test report in-hand, Rutgers Cooperative Extension staff will be prepared use soil science to give you the best fertilizer and liming recommendations for your next garden season.

There are many useful fact sheets to further guide home gardeners on the Rutgers Cooperative Extension publications website. Browse or search at: <https://njaes.rutgers.edu/pubs/>

For garden inspiration and entertainment, you can look up David Mallett's famous song: *Inch by Inch, Row by Row, I'm gonna make this garden grow...*