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1-1-1990

Fertilizing for a Successful Garden

Duane Hatch
Utah State University

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Recommended Citation
Hatch, Duane, "Fertilizing for a Successful Garden" (1990). *All Archived Publications.* Paper 714.
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Fertilizing for a Successful Garden

Duane Hatch, USU Extension Horticulturist

HORTICULTURE FACT SHEET 02

1990 HG/H 02

Properly gown vegetables require high levels of minerals and water. They grow rapidly and produce their edible portion in 25–100 days. We appreciate vegetables because they are tender and crisp or have succulent fruits of various kinds. Plants grown under stress, lacking water and fertility are not as productive nor as desirable to the palate.

By following these guidelines you may be rewarded with a productive garden of quality vegetables without obtaining a soil test. If the soil has not been gardened previously, or if the garden performs poorly in spite of your fertility program, perhaps you should consider a soil test. The USU Soil Testing Lab will test your soil for $10.00 and give you pH, phosphorus, lime potassium, soluble salts and soil texture readings. Other tests are also available. For more information call 801-797-2217. The test will not identify soil home insects, diseases or chemical residues.

The basis for fertilizer recommendations is different for gardens than for farm crops, since the aim is to grow the best possible vegetable crops in the small space available. Your goal should be to stimulate early growth and to accommodate the limited root system of a short-season crop. Home vegetable gardens are not usually large. For a few dollars you can purchase enough fertilizer to be generous to an extent farmers wouldn't consider. Don't over apply fertilizer, especially nitrogen and potassium, to avoid damage to roots by excessive salt build-up. Excess phosphorous reduces the availability of minor elements such as iron, manganese, and zinc.

WHAT DOES MY SOIL CONTAIN?

Most native soils in our area contain rather high levels of potassium. Phosphorus content varies but availability is often low. After lawns, trees and gardens are indiscriminately fertilized for a few years, one or both of these elements may be excessively high. Factors such as soil alkalinity, temperature, organic matter content and microbial activity will influence whether these elements are available to plants when they need them. Nitrogen is readily leached from soil and must be applied each year for high yields.

WHAT SHOULD I ADD?

Plants require nitrogen in largest quantities. Phosphorus and potassium are vital for leaf, stem and root development but smaller amounts are needed.

All substances sold as fertilizers must have a guaranteed analysis. This analysis is expressed as a percent plant food content. For example, a 16-16-8 fertilizer contains 16% nitrogen, 16% phosphate (P_2O_5) and 8% potash (K_2O). Minor elements used by vegetables are usually in adequate supply in our soils.

The fertilizer formula you use depends on what is available in your area. Bulk purchases in 40–50 pound bags may be more economical than small boxes of highly specialized individual crop food. Many flowers will respond well to the application methods and rates given for vegetables. If kept dry, fertilizer quality does not deteriorate.

WHEN IS IT NEEDED?

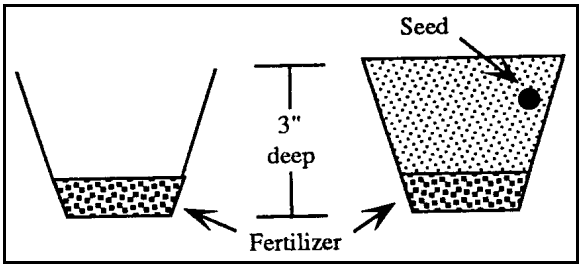
Cool weather reduces the nutrient uptake of elements, especially phosphorus and potassium. This means there should be adequate supplies of soluble plant food readily available so the young plant will produce early, rapid growth for maximum yields.

The first 4-6 weeks is critical for phosphorus and potassium uptake. Nitrogen may be supplied later in the season. Adding the other two elements later does little good since as the soil warms, they are available in sufficient quantities.

BAND APPLICATION

A small quantity of soluble nutrients at planting time into which roots of young plants can grow will encourage early vigorous growth.

Make a trench 3 inches deep with the corner of a hoe. Use ⅓ to ½ cup of a fertilizer such as 16-16-8 per 10 ft. of row. Form the seed furrow at the proper depth for the vegetable approximately 2 inches above and 2 inches to the side of the fertilizer. Don't permit the seeds to contact the fertilizer. Weeds between the rows won't be encouraged so much with banded fertilizer.



To fertilize a transplant, place 2–3 tablespoons of a fertilizer such as 16-16-8, 4 to 5 inches deep with a trowel or shovel. About 2–3 inches away, make another hole and set the plant.

Fertilizer may be applied in "spots" for vegetables spaced widely apart. Plant cucumber or squash seed in a 6–8 inch circle around ¼ cup of fertilizer buried 3–4 inches deep.

Well rotted manure or compost also may be banded. Much larger amounts will be needed than with commercial fertilizers.

BROADCAST APPLICATION

This method is less efficient but faster to apply than banded fertilizer. Weeds between the rows will receive just as much as the garden plants!

Just prior to planting, uniformly spread 10–12 lbs. of a complete fertilizer such as 16-16-8 per 1,000 sq. ft. and work into the soil surface by raking or rototilling. Phosphorous should be placed deeply enough to contact moist soil so as to be available to plant roots. It remains wherever placed in the soil. If you've added a lot of organic matter for soil improvement, you'll also need to supply 10 lbs. of ammonium sulfate per 1,000 sq. ft. for each 1 inch depth of sawdust, leaves, straw, etc.

SIDE DRESSING DURING THE SEASON

About a month after planting, supplemental nitrogen may be required as shown by plant's pale green or yellow color. This may be supplied by ½ cup ammonium sulfate, ⅓ cup ammonium nitrate, or ¼ cup urea per 10 ft. of row. Repeat this application if corn, pole beans, or other long season crops show a need. Nitrogen will leach readily from well drained, sandy soils. Apply one-half these amounts on a more frequent schedule.

Tomatoes may produce an excess of foliage and a shortage of ripe tomatoes if they receive too much extra nitrogen.

Simply scatter the fertilizer near the plants before a sprinkler irrigation. You don't need to dig it in. With flood irrigation, place the fertilizer along the furrow near the "shoulder" before turning in the water.

WHAT ABOUT MANURE?

Manures, when available, may help raise soil nutrient levels. Their use is a good way to recycle "waste" products. They add to the organic matter content of the soil which improves tilth and the ability to hold water and nutrients. They also could add weed problems.

It is virtually impossible to know the nutrient content of manures. Their source, amount and type of straw or other bedding materials, and leaching by rains will all vary. Poultry manure that has not been exposed to rain contains the most nitrogen. Manure of this type should be added at the rate of 100–150 lbs per 1,000 sq. ft. Weathered or very strawy steer or horse manure may require up to 1,500 pounds per 1,000 sq. ft. In fact, some horse bedding may have so much straw or shavings that the manure doesn't furnish enough nitrogen to decompose it. Ammonium sulfate, 10 lbs per 1,000 square feet per inch of added material will supply that nitrogen. Manure is low in phosphorous, so add 4 lbs of treble super phosphate 0-45-0, or equivalent, in mixed fertilizer when manure is applied.

Considering some of the above factors, a judicious use of supplemental chemical fertilizers may insure gardening success if manures are of inadequate supply or quality.

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Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Robert L. Gilliland, Vice President and Director, Cooperative Extension Service, Utah State University. (EP/06-95/DF)