



**CORNELL  
COOPERATIVE  
EXTENSION OF  
ONEIDA COUNTY**

# HOME GROWN FACTS

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## The Quick and Easy Guide to Fertilizer

### Organic Fertilizer Recipe

**Mix uniformly, in parts by volume:**

*4 parts seed meal\**

*1/4 part ordinary agricultural lime, best finely ground*

*1/4 part gypsum (or double the agricultural lime)*

*1/2 part dolomitic lime*

**Plus, for best results:**

*1 part bone meal, rock phosphate or high-phosphate guano*

*1/2 to 1 part kelp meal (or 1 part basalt dust)*

\*For a more sustainable and less expensive option, you can substitute chemical-free grass clippings for the seed meal, although clippings will not provoke the same strong growth response. Use about a half-inch-thick layer of fresh clippings (six to seven 5-gallon bucketfuls per 100 square feet), chopped into the top 2 inches of your soil with a hoe. Then spread an additional 1-inch-thick layer as a surface mulch.

### How Much to Use

Once a year (usually in spring), before planting crops, spread and dig in the following materials.

#### **Low-demand Vegetables:**

1/4 inch layer of steer manure or finished compost

4 quarts organic fertilizer mix/100 sq. ft.

#### **Medium-demand Vegetables:**

1/4 inch layer of steer manure or finished compost

4 to 6 quarts organic fertilizer mix/100 sq. ft.

#### **High-demand Vegetables:**

1/2 inch layer of steer manure or finished compost

4 to 6 quarts organic fertilizer mix/100 sq. ft.

These recommendations are minimums for growing low-, medium- and high-demand vegetables on all soil types, except heavy clay. (Gardeners dealing with heavy clay soils should amend the recommendations. The first year, spread an inch of decomposed organic matter and dig it in to a shovel's depth. In subsequent years, apply manure or compost and fertilizer mix as described above, using about 50 percent more fertilizer.) In addition to these initial applications, add side-dressings of fertilizer around medium- and high-demand crops every few weeks through the season; altogether, these additions may equal the amount used in initial preparation.

This organic fertilizer is potent, so use no more than recommended above. Excessive liming can be harmful to soil. If you can, increase the amounts of manure and compost by 50 percent to 100 percent, but no more than that. If you think your vegetables aren't growing well enough, do not apply more manure or compost; fix it with fertilizer mix.



*Helping You Put Knowledge to Work*

Sacked steer manure is commonly heaped in front of stores in springtime at a relatively low price per bag. However, this material may contain semidecomposed sawdust and usually has little fertilizing value. However, it does feed soil microbes and improves soil structure, which helps roots breathe. And it is not raw manure; it has been at least partially composted. It is useful if not overapplied.

### **Which Crops Need the Most**

For thousands of years, home gardens received the best of the family's manures, and lots of them. Few vegetable crops can thrive in ordinary soil, because they have been coddled for millennia in highly improved conditions. However, different vegetables demand different levels of soil quality. Both low- and medium-demand vegetables will become far more productive when grown in soil that has received at least the minimum applications of fertilizer listed above. High-demand vegetables are sensitive, delicate species and usually will not thrive unless grown in light, loose and always-moist soil that provides the highest level of nutrition.

#### **Low-demand Vegetables**

Jerusalem artichoke, arugula (rocket), beans, beets, burdock, carrots, chicory, collard greens, endive, escarole, fava beans, herbs (most kinds), kale, parsnip, peas, Southern peas, rabb (rapini), salsify, scorzonera, French sorrel, Swiss chard (silverbeet), turnip greens

#### **Medium-demand Vegetables**

Artichoke, basil, cilantro, sprouting broccoli, Brussels sprouts (late), cabbage (large, late), cutting celery, sweet corn, cucumbers, eggplant, garlic, giant kohlrabi, kohlrabi (autumn), lettuce, mustard greens (autumn), okra, potato onions, topsetting onions, parsley/root parsley, peppers (small-fruited), potatoes (sweet or "Irish"), pumpkin, radish (salad and winter), rutabaga, scallions, spinach (autumn), squash, tomatoes, turnips (autumn), watermelon, zucchini

#### **High-demand Vegetables**

Asparagus, Italian broccoli, Brussels sprouts (early), Chinese cabbage, cabbage (small, early), cantaloupe/honeydew, cauliflower, celery/celeriac, Asian cucumbers, kohlrabi (spring), leeks, mustard greens (spring), bulbing onions, peppers (large-fruited), spinach (spring), turnips (spring)

### **Basic Organic Fertilizer Ingredients**

**Seed meals** are byproducts of making vegetable oil and are mainly used as animal feed. They are made from soybeans, flaxseed, sunflowers, cotton seeds, canola and other plants. Different kinds are more readily available in different regions of the country. When chemically analyzed, most seed meals show similar nitrogen-phosphorus-potassium (NPK) content — about 6-4-2. Because seed meals are used mainly as animal feed and not as fertilizer, they are labeled by protein content rather than NPK content. The general rule is that 6 percent protein provides about 1 percent nitrogen, so buy whichever type of seed meal gives you the largest amount of nitrogen for the least cost.

If you want seed meals that are free of genetic modification and grown without sewage sludge or pesticides, choose certified organic meals. Seed meals are less expensive in 40- or 50-pound bags, which can be found at farm stores rather than garden centers. Seed meals are stable and will store for years if kept dry and protected from pests in a metal garbage can or empty oil drum with a tight lid.

**Lime** is ground, natural rock containing large amounts of calcium, and there are three types. Agricultural lime is relatively pure calcium carbonate. Gypsum is calcium sulfate. Dolomite, or dolomitic lime, contains both calcium and magnesium carbonates, usually in more or less equal amounts. If you have to choose one kind, it probably should be dolomite, but you'll get a far better result using a mixture of the three types. These substances are not expensive if bought in large sacks from agricultural suppliers. (Do not use quicklime, burnt lime, hydrated lime or other chemically active "hot" limes.)

You may have read that the acidity or pH of soil should be corrected by liming. I suggest that you forget about pH. Liming to adjust soil pH may be useful in large-scale farming, but is not of concern in an organic garden. In fact, the whole concept of soil pH is controversial. My conclusion on the subject is this: If a soil test shows your garden's pH is low and you are advised to apply lime to correct it — don't. Each year, just add amendments as shown in "How Much to Use". Over time, the pH will correct itself, more because of the added organic matter than from adding calcium and magnesium. And if your garden's pH tests as acceptable, use the full recommendations in "How Much to Use" anyway, because

vegetables still need calcium and magnesium in the right balance as nutrients.

If you routinely garden with this homemade fertilizer mix, you won't need to apply additional lime to the garden. The mix is formulated so that, when used in the recommended amount, it automatically distributes about 50 pounds of lime per 1,000 square feet each year.

**Bone meal, phosphate rock** or **guano** (bat or bird manure) all serve to boost the phosphorus level, and phosphate and guano usually are also rich in trace elements. Bone meal will be the easiest of the three to find at garden centers.

**Kelp meal** (dried seaweed) has become expensive, but one 55-pound sack will supply a 2,000-square-foot garden for several years. Kelp supplies some things nothing else does — a complete range of trace minerals plus growth regulators and natural hormones that act like plant vitamins, increasing resistance to cold, frost and other stresses.

Some **rock dusts** are highly mineralized and contain a broad and complete range of minor plant nutrients. These may be substituted for kelp meal, but I believe kelp is best.

Source: <http://www.motherearthnews.com/Organic-Gardening/2006-06-01/A-Better-Way-to-Fertilize-Your-Garden-Homemade-Organic-Fertilizer.aspx>

**This publication may contain pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are still possible. Some materials mentioned may no longer be available, and some uses may no longer be legal. All pesticides distributed, sold or applied in New York State must be registered with the New York State Department of Environmental Conservation (NYSDEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension Specialist or your regional NYSDEC office. Read the label before applying any pesticide.**