

Preparing Soil for Planting



When it comes to a healthy garden, **soil preparation** matters.

All vegetables need soil that's rich in nutrients. Some soil needs a helping hand. Here are tips on building healthy soil:

Test Your Soil

- Test your soil. Results will reveal its pH, phosphorus, lime, potassium, soluble salts, soil texture, and more. However, a general test will not reveal insects, diseases, or chemical residues.
- There are a few ways to get a soil test. First, you could buy an inexpensive soil test kit at your local garden store. Or, you could contact your [local cooperative extension service office](#) for a free (or low-fee) soil test. Or, see this gardening blog about a resource that provides [soil types around the country](#).

Amending Your Soil pH

- Achieve the proper soil pH. A very high or very low soil pH may result in plant nutrient deficiency or toxicity. A pH value of 7 is neutral; microbial activity is greatest and plant roots absorb/access nutrients best when the pH is in the 5.5 to 7 range.
- Add organic matter to your soil. It improves structure, slowly releases nutrients, and increases beneficial microbial activity. (NOTE: It is virtually impossible to know the nutrient content of aged manure.)

Know Your N-P-K

Plants' primary nutrients are nitrogen (N), phosphorus (P), and potassium (K). These are available in chemical/synthetic (nonorganic) fertilizers (on the package, the numbers of each nutrient indicate the percentage of net weight contained) or as organic additives suggested here.

- Nitrogen (N) promotes strong leaf and stem growth and dark green color, such as desired in broccoli, cabbage, greens and lettuce, and herbs. Add aged manure to the soil and apply alfalfa meal or fish or blood meal to increase available nitrogen.
- Phosphorus (P) promotes root and early plant growth, including setting blossoms and developing fruit, and seed formation; it's important for cucumbers, peppers, squash, tomatoes—any edible that develops after a flower has been pollinated. Add (fast-acting) bonemeal or (slow-release) rock phosphate to

increase phosphorus.

- Potassium (K) promotes plant root vigor and disease and stress resistance and enhances flavor; it's vital for carrots, radishes, turnips, and onions and garlic. Add green sand, wood ashes, gypsum, or kelp to increase potassium.

Avoid applying excess chemical/synthetic fertilizer. It can damage roots and/or reduce the availability of other elements. It is virtually impossible to overdo organic fertilizers. Plants cannot distinguish between synthetic and organic fertilizers.

When is a good time to fertilize your vegetables? [See our Growing Vegetables Guide.](#)

Soil Fixes

- If you have clay soil, add coarse sand (not beach sand), compost, and peat moss.
- If you have sandy soil, add humus or aged manure, peat moss, or sawdust with some extra nitrogen. Heavy, clay-rich soil can also be added to improve the soil.
- If you have silt soil, add coarse sand (not beach sand) or gravel and compost, or well-rotted horse manure mixed with fresh straw.

Soil Amendments

- Bark, ground: made from various tree barks. Improves soil structure.
- Compost: excellent conditioner.
- Leaf mold: decomposed leaves that add nutrients and structure to soil.
- Lime: raises the pH of acid soil and helps loosen clay soil.
- Manure: best if composted. Good conditioner.
- Peat moss: conditioner that helps soil retain water.
- Sand: improves drainage in clay soil.
- Topsoil: usually used with another amendment. Replaces existing soil.

All plants need different soil and all soil needs different nutrients and amendments to be ready to grow healthy plants. Readyng the soil for healthy farming is similar to preparing a school culture to help all children reach their potential.