

Homemade Potting Soil

(Heavily edited from - How to Make Your Own Potting Soil

You can save money by using your own soil and compost to make potting mixes your plants will love.

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Packaged potting soils are a terrific convenience, but their cost adds up fast in a busy garden. Last year, I paid \$7 per 22-quart bag for my favorite, McEnroe Organic, a fair price but is nevertheless dollars out the door. Making only about half of the potting soil I used saved me around \$60. Next year, when my pile of rotting sawdust matures, I hope to be potting-soil self-sufficient.

Potting soil self-sufficiency is good for your pocketbook, your plants and the planet, and you actually gain convenience by always having potting soil ready when you need it. If you have soil and compost, you've got the basic ingredients for making your own potting soil. In place of peat moss, perlite and vermiculite (the three leading ingredients in bagged potting soil), you can simply combine your best soil with cured compost, leaf mold, rotted sawdust (from untreated wood) or a long list of other organic ingredients.

Using live compost or biologically active garden soil in your potting mixes often requires two extra steps - screening and then heat-treating or pasteurizing the material at 160 degrees to 180 degrees Fahrenheit. I like to use the compost made from garden waste to make potting soil, so whenever a batch looks good, I screen some and put it in plastic pails, bins or bags (such as those saved from purchased potting soil). My compost screen is a piece of half-inch mesh plastic fencing stapled to two pieces of scrap lumber. Many people use a similar version, with the screen attached to a sturdy wood frame. Stored where it can stay lightly moist, screened compost continues to cure and improves with age.

When you have excellent-quality, cured compost, and you're not working with light-stressed little seedlings (the most disease-prone of all green beings), it's fine to go ahead and mix up a 50:50 mixture of compost and good soil, and try it out. Or use more compost and less soil. My garden waste compost often contains quite a bit of soil already, mostly from the roots of pulled plants, so I often go with three parts compost to one part soil when potting plants that are ready for a rich, outdoorsy mix that gives them a nice taste of their future.

Now for the risks. The bioactive nature of compost makes it an ideal primary food source for your garden's soil food web, but teeming colonies of random fungi and bacteria are the last thing you want in containers. Many of the microbes in compost specialize in breaking down dead plant matter, but if they are deprived of food they often find ways to invade live plant tissues. Good examples are the cadre of fungi that cause seedlings to rot off at the soil's surface, called "damping off." These fungi are usually present in compost, but when forced to compete with other microorganisms in open soil, they stick to a dead-plant diet. But when let loose in a flat of tomatoes, with little or no appropriate food or competition, they will go after tender new roots and stems rather than starve.

Numerous studies have shown that pasteurization, which involves heating compost or soil to 160 degrees for an hour, or 180 degrees for 30 minutes, kills a high percentage of all fungi and bacteria (the good and the bad), while preserving the biological integrity of the material - and its ability to suppress other diseases. Pasteurization kills persistent insects such as fungus gnats, too, along with all but a few heat-resistant weed seeds. The temperature must not go above 190 degrees, which can result in the formation of compounds that hinder plant growth.

Homemade Potting Mix

Gardeners use various potting mixtures for seedlings, transplants, and container plants. These mixtures combine a variety of ingredients to provide a good growing environment for plant roots.

Commercial pre-packaged potting soils are widely available at nursery and garden supply stores, but you can also make your own potting mix at home. Making your own mix allows you to control the types and proportions of ingredients to customize your potting mix to meet your needs.

Ingredients

A good potting mix should:

- Be dense enough to support the plant.
- Hold nutrients well.
- Allow for air and water flow while retaining moisture.
- Be free of pathogens and weed seed.

Potting mediums must meet plant root requirements for air, water, nutrients, and support, which vary for different plants and growth stages. Despite the differences in types of potting mixes, they share common ingredients, just in different amounts.

Soil

Soilless mixtures are common due to density and disease concerns. Some organic blends still use soil. Clean topsoil or garden soil can be used and should be sterilized to kill disease organisms and weeds. Spread soil in a tray and bake at 200° F for twenty minutes, stirring every five minutes.

Sand

Sand adds air space to a potting mix. Builder's sand, or coarse sand, is best. Avoid plaster and fine sands; they create a dense mix. Because it is heavier than other ingredients, sand is a good choice for top-heavy plants that might tip over.

Compost

Compost is cheaper than traditional ingredients, holds water well, provides nutrients, and can be produced at home. The nutrient quality of compost will depend on the quality of the materials that were composted.

Pine Bark

Bark creates a light mix with air space but low water holding capability. It degrades slowly and is a good component for mixes for potted ornamentals. It may be partially substituted for peat moss.

Sphagnum Moss & Peat

Peat moss is the most common ingredient for soilless mixes because it is widely available and inexpensive. Peat moss decomposes slowly and holds large amounts of water; however, it has a high acidity. Lime is usually added to mixes to balance the pH. Ground-up newspaper can be used as a peat moss substitute.

Coir

Coir, a by-product of the coconut fiber industry, looks like sphagnum moss, but is granular, doesn't contain twigs or sticks, and is more expensive. Coir typically is packaged as a compressed brick that will expand when wetted. It is important to note that coir may require less potassium and increased nitrogen supplementation. There is also the chance of salt damage since salt water is used in its processing.

Perlite

Perlite is a sterile and pH-neutral lightweight volcanic rock. It increases air space, improves water drainage, and is a good lightweight replacement for sand.

Vermiculite

Vermiculite is another lightweight addition to potting mixes. Handle it gently; if it's handled roughly, it compacts and loses its air-holding ability. Medium grade is suitable for seedlings, while coarse grade is better for a soil mix for older plants.

Recipes

When making your own potting mix, working from a recipe is a good idea to start. Once you begin experimenting with your own blends, try small test batches to evaluate the mix's quality. See the recipes below to get started making your own potting mixes.

Soil-Based Mix

This mix is heavier than peat-based mixes, but it has good drainage. Vermiculite or perlite can be used for sand.

- 1/3 compost;
- 1/3 topsoil;
- 1/3 sand

Foliage Plants

- 2 parts peat;
- 1 part perlite;
- 1 part coarse sand

OR

- 1 part peat;
- 1 part pine bark;
- 1 part coarse sand

Succulents

- 2 parts soil;
- 1 part peat moss;
- 1 part perlite;
- 1 part coarse sand

Bromeliads

- 1 part peat;
- 1 part bark;
- 1 part coarse sand

Seedlings

- 2 parts compost;
- 2 parts peat moss;
- 1 part vermiculite (pre-wet)