Soil Amendments & How to Use Them

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The use of soil amendments is an ancient art, and the basic premise is that by employing them, pretty much any piece of land can be made fertile. The type of amendment to choose depends entirely on how the soil needs to be changed.

One of the first things to consider is the pH of the soil. If your soil is too acidic or too alkaline, plants will not be able to take up the nutrients that are present. Adding fertilizer or other amendments to soil with an extreme pH will not help – you have to address the pH issue first, and it’s a relatively simple process.

Lime

Lime is a pulverized rock powder made from chalk or limestone that is high in calcium. Dolomite lime comes from a different source and is also high in magnesium. Both of the elements have the effect of raising the pH (lowering the acidity) of soil. They work in essentially the same way as the antacid pill you might take for heartburn, by neutralizing acidity, but they have the added benefit of adding essential minerals to the soil. Both calcium and magnesium slow the process of soil becoming acidic again.

Various kinds of plants do better with different levels of soil acidity. We recommend adding lime to your garden every three years in this region, and following a three-year crop rotation method that takes advantage of the soil as it gradually becomes acidic again. In the first year, add your lime in late winter. Plant leafy vegetables like lettuce and spinach, as well as the various Brassicas (cabbage, broccoli, cauliflower, kohlrabi...) which all appreciate neutral soil and high levels of calcium. In the second year, the soil will begin to turn slightly acidic, so you would plant legumes like peas and beans, as well as onions and squash. By the third year, your soil will be on the acidic side, so you would plant varieties that thrive in acidic soil: tomatoes, peppers, eggplants, potatoes, and other root crops like turnips and carrots. At the end of this season, you would lime the soil once more.

Organic Matter

As mentioned in the previous article, adding organic matter to the soil is one of the fundamental principles of organic gardening. It feeds soil microbes, which in turn release nutrients into the soil, increasing fertility. Organic matter also adds body to soil, and can improve the soil’s ability to conserve moisture. Organic matter should be added to garden soil every year, prior to planting.

We like to add a layer of compost, well-rotted manure, leaf mulch, or even plain straw to the surface of the soil during times when the garden is not productive. This creates a lush habitat for beneficial soil organisms.

Glacial Rock Dust

Glacial rock dust is a naturally occurring powder of minerals pulverized by the movement of glaciers. It contains a broad spectrum of nutrients that improves soil structure, mineral imbalance, and moisture-retaining ability. It helps to neutralize soil acidity (although with less effectiveness than lime), and it increases bacterial action. You can add glacial rock dust at any time of the year – but do it on a still day, or when it’s raining, as the powder is very fine. You cannot over-apply glacial rock dust.

Alfalfa Meal

Alfalfa meal is a byproduct of the alfalfa growing industry, and contains such a broad spectrum of nutrients that it acts as a low intensity fertilizer. It’s a great thing to add to compost piles or directly into the garden soil, as it accelerates the breakdown of organic matter and fuels microbial activity.

Kelp
Since ancient times, seaweed has been gathered from beaches around the world, and hauled inland to enrich garden soil. It breaks down easily and releases a lot of potassium, as well as a broad spectrum of micronutrients. It also contains growth-stimulating hormones that lead to vigorous growth and good resistance to pests and disease. Kelp can be added as a mulch in winter, or put directly into the compost pile. Be sure to leave any seaweed that you collect from the beach out in the rain for several days to rinse off excess salt. And use it sparingly – maybe once a year – to prevent a build up of sodium in the soil. Otherwise, you can try using one of the prepared kelp-based fertilizers on the market like Kelpman. This is a concentrated product that can be used throughout the year as a liquid or foliar fertilizer.

**Manure and Farm Waste**
Bedding from animal stalls and manure are excellent sources of Nitrogen and other nutrients, but it is essential to let them rot completely before adding them to your garden. Fresh animal manure can contain as much Nitrogen as chemical fertilizers, and can burn plants or stunt growth. If you have access to organic farm manure, try accumulating some in a pile in the corner of the garden this year, and incorporating it into your soil next year. Bagged manures are available from most garden centres, and come pre-rottled. Look for products with little or no odour. Mushroom manure is a byproduct of the mushroom growing industry and contains primarily chicken manure that has been completely decomposed.

**Greensand**
This is silicate mineral containing 20% iron oxide, 7% potassium, and as many as thirty other elements. It has the unique ability to loosen hard soils as well as bind sandy soils. It’s a naturally occurring seashore deposit that regulates the release of nutrients in soil and assists in moisture retention. If you have clay soil, don’t add sand – add greensand.

**Fertilizers**
Follow the guidelines in the West Coast Seeds Gardening Guide for each variety. A fertilizer like the Complete Organic 4-4-4 will build stronger plants with better resistance to disease and stress, and with larger and more abundant fruits or roots. Most potting soils have enough nutrients that fertilizers are not necessary for seedlings until they are transplanted to the garden. Generally speaking, you want the fertilizer to go beneath each transplant, but not in direct contact with its roots. In a typical situation (transplanting a tomato plant, for example), you would dig a hole slightly deeper than the root ball of the seedling. This allows the fertilizer to be worked into the soil at the base of the hole, and then a little soil added to cover it up before the transplant is set in place. The roots of the transplant will eventually reach that rich layer of fertilizer, but on their own time. Even organic fertilizers may burn tender roots. Finally, avoid the temptation to over-fertilize. Soil can only be so nutritious, and being too generous with fertilizer is simply wasteful.