Amendment, Mulch, or Fertilizer?

By Nanette Londeree, Master Rosarian

We gardeners often add things to our soil – scooping it in, spreading it on, or pouring it over. What material you use is generally based on what you want to accomplish. Are you trying to improve drainage? Keep weeds down, or boost some nutrients? You may need an amendment to improve the soil structure, a fertilizer to replace nutrients, or perhaps a mulch to spruce up the garden's appearance. How do you decide what to use, especially when there are so many things to choose from, and some can serve more than one purpose? .

Let's start by clarifying some terms:

- An **amendment** is any material *mixed into the soil* that *indirectly* aids plant growth by improving the physical properties of the soil.
- A **mulch** is a material placed *on the soil surface* to help prevent weed growth and conserve moisture.
- **Fertilizer** *directly* affects plant growth by improving the supply of nutrients in the soil.

If you want to maintain or improve the soil's physical structure, improve water retention or drainage, increase or decrease soil pH, or increase the volume of organic matter, you'd use a soil amendment.

You'd likely choose mulch if you were after conserving soil moisture by slowing evaporation, impeding growth of weeds, helping to reduce erosion, increasing water absorption and retention, or simply making the surface area more attractive.

Fertilizers would be the go-to material if you need to provide nutrients essential for optimum plant growth at the time they are needed, or to replenish lost soil nutrients.

Some commonly used materials in the rose garden can serve multiple purposes. The best example is compost – it is an excellent amendment that can be mixed into the soil and change its physical properties. It also serves as a fertilizer providing low levels of nitrogen, phosphorus, and potassium. When compost is mixed with another material like rice hulls or grape pumice, it can be used as a mulch to cover soil and help reduce moisture loss.

A little side note: Not only is compost a great amendment for the soil, but you can make your own! The process of composting is good for your garden and for the environment. Home composting allows you to recycle organic material while conserving landfill space and reducing reliance on fossil fuel. The end-product is garden gold! If you're interested in learning more about making your own compost, check out Compost Systems: What's Best for You?

Whether using an amendment, fertilizer, or mulch, try to use organic materials whenever possible. These are derived from something that was once alive. They increase soil organic matter content, contain plant nutrients that can act as fertilizer, serve as an energy source for bacteria, fungi, and earthworms, and modify the soil structure as they decompose. And they're generally gentler on the environment.

This table includes organic materials that may be used as amendments, fertilizers, or mulch. It includes a typical nitrogen-phosphorus-potassium (NPK) concentration and notes about the material.

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Material	Fertilizer	Amendment	Mulch	~ N-P-K	Comments
Alfalfa meal	X			3-1-2	Contains triaconatol, a natural fatty-acid growth stimulant. May contain ethoxyquin, a preservative, to keep it green.
Blood meal	X			13-1.5-0.6	Made from dried slaughterhouse waste. If over-applied it can burn plants with excessive ammonia.
Bone meal	X			1-11-0	Steamed ground bone high in phosphate.
Chipped, or shredded bark			X		*Shredded cedar bark should be used 30 feet or more away from structures for fire safety.*
Cocoa bean hulls		X	X	2.5-1-2.5	Dark color absorbs heat; light chocolate smell; *may be toxic to dogs.*
Coffee grounds	X	X		2-0.3-0.3	Acidic; use to lower soil pH, or combine with more alkaline materials like wood ashes or limestone.
Compost	X	X	X	1-1-1	Decayed organic materials such as food wastes, poultry litter, grass clippings, leaves, manure. Composts improve soil structure and slowly release nutrients to plant roots.
Earth worm castings	X	X		1.5-2.5-1.3	No risk of burning plants; very high in organic matter; has a neutral pH and contains trace elements, enzymes and beneficial microorganisms.
Fish emulsion	X			5-1-1	Contain many valuable micronutrients. May have strong fishy smell.
Kelp meal	X			1-0.5-9	Made from seaweed; contain dissolved ocean minerals. Rich concentrations of trace minerals, amino acids, vitamins, and growth hormones.
Manure (aged)	X	X		6-0.15-0.45	Waste material from animals including horse, cow, pig, chicken, turkey and sheep. Fresh material contains the highest amount of salts that can burn tender roots; should be composted first to reduce chance of burning.
Peat moss (fibrous sphagnum)		X			Partially composted moss mined from prehistoric non-renewable bogs. Light and porous, it absorbs 10-20 times its weight in water. Its high surface tension causes it to repel water when it's dry.
Pine needles			X	0.5-0-1	Suitable for plants in acid soil.
Sawdust		X	X	1-0.5-1	Only well-decayed sawdust should be incorporated into the soil. Can mat and inhibit water penetration. *Fresh sawdust can burn plant roots and "tie up" nitrogen as it decomposes.*
Wood chips		X	X		High in carbon and can deplete nitrogen from soil; use products that have added nitrogen or mix with nitrogen fertilizer before using.