

## Fertilizers & Soil Amendments

MATERIAL	FERTILIZER	AMENDMENT	N-P-K	COMMENTS
<b>ORGANIC MATERIALS</b>				
Alfalfa meal	X		3-1-2	Contains triacontanol, 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.
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	1-1-1	Decayed organic materials such as straw, food wastes, poultry litter, grass clippings, leaves, manure. Composts improve soil structure and slowly release nutrients to plant roots.
Earthworm 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	Contains many valuable micronutrients. May have strong fishy smell.
Guano	X		10-3-1	Decomposed manure, usually of bat or seabird origin.
Grass clippings	X	X	1-0-1	May contain weed propagules, e.g., seeds or bermudagrass stems.
Humus	X	X		Stable end product of the decomposition of soil organic matter. Holds water and nutrients, aids soil aggregation, is a source of humic acid and chelates, and contains huge microbial populations.
Kelp meal	X		1-0.5-9	Made from seaweed; contains dissolved ocean minerals. Rich concentrations of trace minerals, amino acids, vitamins, and growth hormones.
Leaf mold		X		Shredded leaves stored in plastic bags or wire mesh cages and kept moist to allow fungi to colonize.
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. Not a sustainable material.
Sawdust		X	1-0.5-1	Only well-decayed sawdust should be incorporated into the soil. Fresh sawdust can burn plant roots and "tie up" nitrogen as it decomposes.
Soybean meal	X		7-2-1	Can inhibit the germination of seeds planted right before or after an application.
Urea	X		46-0-0	Rapid nitrogen release with a high "burn potential". Handle and use with care.
Wood ashes	X		0-1.5-5	Ashes are too fine to improve soil structure.

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<b>INORGANIC MATERIALS</b>				
Ammonium sulfate	X		20-0-0	Very acidic, especially suitable for blueberries and azaleas, which require the ammonium form of nitrogen. Mix into soil to prevent loss of nitrogen to atmosphere.
Chelated iron	X			Chelated elements are combined with compounds that hold them in solution, making them available for plant uptake through roots or leaves.
Dolomite		X		Carbonates of magnesium and calcium in equal proportions. Useful for neutralizing acid soils in the same manner as limestone
Epsom salts	X			Magnesium sulfate, a highly soluble form of magnesium and sulfur.
Greensand		X	0-1.5-5	Naturally occurring iron-potassium silicate with the ability to absorb 10 times more moisture than ordinary sand. Contains marine potash, silica, iron, magnesium, and lime, plus up to 30 other trace minerals. Dual ability to bind sandy soils and loosen clay soils. Potassium (5-7 %) released very slowly over 4 to 5 years. Slightly acidic.
Gypsum		X		Calcium sulfate, about 20-23% calcium and 15-18% sulfur, Calcium is fast-acting. Also recommended to tie-up excess magnesium. Gypsum will not raise or lower soil pH.
Lime or Limestone		X		Generic term for a wide range of agricultural materials containing calcium and magnesium in forms that are capable of reducing soil acidity. Provides large quantities of secondary nutrients.
Perlite		X		Naturally occurring expanded volcanic glass; a light material with an extremely large surface area that holds moisture and nutrients and makes them available to plant roots.
Sand				Use to improve water drainage. A minimum of 50% by volume is necessary for aeration of clay soils . Use only coarse builder's sand, not play sand.
Superphosphate	X		0-18-0	Phosphate rock treated with acid to make the phosphorus more soluble.
Vermiculite		X		Mica-type mineral heated in high temperature furnaces to form sterile, expanded, fan-like particles with many air spaces which promote aeration and water movement. Absorbs and holds nutrients and water (unlike perlite).