UC Marin Master Gardeners
Telephone: 415/473-4204
Website: *http://www.marinmg.org*

Advice to Grow By … Ask Us!

FERTILIZER, MULCH OR AMENDMENT?

By Nanette Londeree, Marin Master Gardener

Here it's spring and you're ready to mix up some great soil to plant a new container on your patio, or to give your soil a boost since it's been producing less than stellar plants and blooms. But what do you add? Are you looking for a fertilizer or an amendment? Or a mulch? There are so many things to choose from, where does one start? It really depends on what you want from the material.

The dictionary defines an amendment as "a material (as compost or sand) that aids plant growth indirectly by improving the condition of the soil,"- it may improve soil structure or texture, water retention or microbial activity. A fertilizer is a material that directly impacts a plant, providing it with specific nutrients. Some amendments, like composted manures or limestone can function both as a soil conditioner and fertilizer. An organic mulch, laid on top of the soil to reduce weeds and water loss, is an amendment that will provide indirect benefits to the soil as it decomposes.

Amendments may be organic or inorganic; they may include nitrogen (N), phosphorus (P) or potassium (K), secondary nutrients, trace elements or no nutrients at all (perlite or vermiculite). The list below is a guide of the common amendments (most are readily available) that can help you build healthy soil:

MATERIAL	ORGANIC / INORGANIC	N-P-K	COMMENTS
Alfalfa meal	Organic	3/1/02	Pellets or ground meal from the alfalfa plant; natural plant growth stimulant (triaconatol).
Ammonium sulfate	Inorganic	21-0-0	Fast acting, concentrated source of nitrogen with 24% sulfur; increases acidity.
Blood meal	Organic	~15-1.3-0.7	Collected blood of slaughtered animal; then dried and ground. Contains iron and many other trace elements. Encourages leaf growth. When purchasing this material, ensure that the material has been steam sterilized to remove any concern regarding transmission of blood- borne diseases.
Bone meal	Organic	4/23/00	Bones, hoofs and antlers of vertebrates, which have been softened by steam and ground. High in phosphorus and slow release.
Chelated iron	Inorganic	NA	A chemically modified form of iron that makes it available to the plant.
Coffee grounds	Organic	~2-0.3-0.3	The grounds from your coffee maker are acidic; use if you want to lower soil pH, or combine with more alkaline materials like wood ashes or limestone
Compost	Organic	Varies	Decomposed organic matter derived from vegetative sources. The nutrient value varies depending on materials that are composted. Adds macro and micronutrients, and builds the soil.
Dolomite	Inorganic	NA	Carbonates of magnesium and calcium; useful for neutralizing acid soils in the same manner as limestone; supplies magnesium.
Earth worm castings	Organic	~0.5-0.5-0.3	Superb soil conditioner with no risk of burning plants; very high in organic matter.
Epsom salts	Inorganic	NA	Magnesium sulfate - 10% magnesium and 13% sulfur; greens up foliage; encourages new canes (basal breaks) in roses. Magnesium is essential for good leaf growth.
Fish emulsion	Organic	~4-1-1	Partly decomposed blend of finely pulverized fish. Source of nitrogen and other trace elements. Encourages new growth.

MATERIAL	ORGANIC / INORGANIC	N-P-K	COMMENTS
Greensand	Inorganic	NA	18% iron oxide and 30 other trace elements that are released slowly; loosens soil.
Gypsum	Inorganic	NA	33% calcium oxide; increases soil permeability, lightens heavy alkaline soils; flushes salts from soils.
Humus	Organic	Varies	Well-decomposed organic matter;. high buffering capacity prevents soil from becoming too acid or alkaline.
Kelp meal	Organic	~1.5-0.5-2.5	Dried seaweed used as slow acting fertilizer with micronutrients; increases plants resistance to stress.
Lime or Limestone	Inorganic	NA	Generic term for a wide range of agricultural materials defined as having a calcium and magnesium content that is in forms that are capable of reducing soil acidity. Provides large quantities of secondary nutrients.
Manure	Organic	Varies	Waste material from animals including house, cow, pig, chicken, turkey and sheep. The nutrient content varies widely, and the highest concentration is in fresh material, though this also contains the highest amount of salts that can burn tender roots. Provides macro and micronutrients, and conditions the soil. Should be composted first to reduce chance of burning.
Peat moss	Organic	Varies	Peat moss plants that have been harvested and dried; hold up to seven times its weight in water. Supplies organic matter and acidifies soil; use to lower soil pH. Mix well into soil as it can repel water if allowed to dry out.
Perlite	Inorganic	NA	A naturally occurring volcanic glass that, after heating, expands to produce a light material with an extremely large surface area that holds moisture and nutrients and makes them available to plant roots.
Sawdust	Organic	0.2-0.1-0.2	Low level of nitrogen and potassium that is best mixed with compost before adding to soil.
Superphosphate	Inorganic	0-20-0	Rock phosphate that has been chemically treated to make it more water soluble (about 90%). It also contains calcium and sulfur, essential elements for good growth.
Urea	Organic	42-0-0	Commercial synthetic acid amid of carbonic acid; the most concentrated nitrogen fertilizer available to home gardeners; readily absorbed, quite acid forming (good for alkaline soils).
Vermiculite	Inorganic	NA	Naturally mined ore which when heated expand to many times its original volume creating a light fluffy material. Absorbs many times its weight in water. Good conditioner for heavy soils.
Wood ashes	Organic	0-2-6	Fast acting, rich source of calcium that raises soil pH; don't add directly to soil if pH is above 6.5.