

Organic Soil Amendments and Fertilizers



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Organic growers use soil amendments to improve soil fertility and create a healthy habitat for soil life. Many of the nutrients and minerals in the amendments are insoluble and are slowly released. The gradual release is similar to natural nutrient cycles and leads to healthy crops with little or no nutrient leaching. Before applying amendments, have your soil tested to find out about nutrient deficiencies or excesses. Observing weeds and crops can also provide information about nutrient levels.

Calcium improves tilth, reduces compaction and increases the CEC. The CEC (cation exchange capacity) is the capacity of the soil to hold nutrients.

The **pH** of agricultural soils is ideally 6.0-7.0. Soils with a pH below 6.0 are acidic; a pH >7.0 indicates an alkaline soil.

Phosphorous is used to produce sturdy plants with strong root systems and stalks. Adequate levels are needed for the over winter survival of perennials, and high yields of seed crops (e.g. pulses and oilseeds).

Sulphur is needed by all crops, especially oilseeds, brassicas and legumes.

Calphos, Greensand, Sul-Po-Mag and **Carbonatite** are rock products with insoluble nutrients and minerals. To increase the availability of phosphorous and other nutrients, add these to manure piles, compost or green manures. Microbial activity releases the nutrients and makes them available to crops.

Boron is an essential trace mineral which is needed for high yields and strong plants. It is usually absent in other soil amendments, and deficiencies occur after decades of mining the soil. It is a dry granular product which also contains a wide range of trace minerals.

Calphos (colloidal phosphate) is untreated soft phosphate clay from Florida. It contains 20% phosphate including 3% available P. The phosphate is more immediately available than that from rock phosphate and is released over 5 years. Calphos also contains 20% calcium (which helps to raise the soil pH) and a range of trace minerals. With a dry granular texture, Calphos flows well and will not rust machinery. Add at a rate of 20-50 lb. of Calphos to one ton of manure, or 500-2000 lb/acre in late summer or early fall. It also acts as a moisture absorbent in livestock bedding and a manure conditioner to reduce odour and nitrogen loss.

Earthworm Casting are from earthworms that are fed a diet of all non-manure based products, non post-consumer waste products except some shredded cardboard or paper in the bedding. Castings are a very rich source of biology including large amounts of beneficial fungi, protozoa, and nematodes. The castings are a finely screened product. The earthworms make nutrients much more available to plants.

Humate Concentrate, 12% is a liquid form of the naturally occurring oxidized lignite known as humic acid. It is applied as a seed soak, foliar spray and direct soil spray. Plants are able to take up micro-nutrients easier and become stronger and healthier, able to handle stress better. The soil structure is restored and beneficial micro-organisms increase. The use of fertilizers is reduced as humate increases the carrying ability of the water.

From Symbionature. We have chosen the Plocher System from Germany as proven tools for excellent management of slurry and manure, animal, fruit and vegetable production. Often likened to homeopathy or simplified biodynamics, the Plocher system supports natural processes, respects the environment, and works towards maintaining ecological balance in all aspects of life. Approved for organic agriculture by ECOCERT Canada.

The **Plocher G slurry treatment** oxygen information allows beneficial aerobic bacteria to get to work. The Plocher K for compost, livestock bedding and solid manure starts the composting before the manure leaves the building. It reduces odours and improves hygiene in the buildings.

The **Plocher P soil activators** encourage root growth, activate microbial life in the soil and increase the composting of surface crop residues. The **Plocher plant fortifiers** optimize seed germination, strengthen plants and improve the intake of soil and air nutrients.

The **Plocher T feed additive** carries the oxygen signature into the livestock digestive system, increases feed conversion, improves nutrient uptake and overall health and performance.

Hydrolyzed Fish (Fermented Salmon) (NPK : 1.4-0.2-0.2) is a liquid organic fertilizer, containing the 3 standard macronutrients (NPK), 30 micronutrients, 14 amino acids, 10 fatty acids and a multitude of other beneficial compounds. It is used as both a drench and foliar applied fertilizer resulting in the dual benefit of growth enhancement and disease suppression. This liquid requires dilution and mixing. It is stable and will not gas, is not temperature sensitive, and has a long shelf life.

Green manures are an essential part of organic crop rotations. They improve soil fertility, control weeds and sustain soil life. *Homestead Organics* carries seed for many nitrogen-fixing legume green manures including red clover, white clover, birdsfoot trefoil, yellow sweet clover, vetch, field peas and soybeans. Seed inoculant (non-genetically modified) is used to increase rates of nitrogen fixation and yields. For weed control, erosion control and soil improvement, use oilseed radish, oats, buckwheat, or forage grasses. The green manure seed is untreated, and the oilseed radish, red clover and buckwheat are certified organic.

Greensand (iron-potassium silicate or glauconite) is an ocean deposit developed from seashells and organic matter. It contains 7% potash (which is slowly released), and micronutrients including sulphur, boron, iron, manganese and zinc. Greensand improves the tilth of heavy soils, and increases the water-holding capacity of sandy soils. Apply at any time at 300-500 lb./acre or 2-5 pounds per 100 square feet.

Gypsum (calcium sulphate) provides calcium (22%) and sulphur (17%), without changing the soil pH.

Hot pepper wax is sprayed on foliage; the thin layer of wax acts as a moisture guard and the hot pepper serves as an insect repellent.

Kelp fertilizer mix is a 3-way mix of kelp meal, lignite, and organic cane sugar. It provides trace minerals, humic acids, and sugar to stimulate microbial activity. This starter fertilizer helps plants emerge quickly, have greater resistance to pests and diseases, extended shelf life, and better nutrition. Apply 15 lb/acre at planting. It flows well and is suitable for the fertilizer box of row planters.

Kelp meal is granular dehydrated seaweed harvested from abundant beds on the North Atlantic shores of Canada. Use 150-250 lb/acre for pasture, grain and forage, 200-400 lb/acre for vegetables and gardens.

Limestone provides calcium and 'sweetens' acidic soils by increasing the pH. Dolomitic lime provides both calcium and magnesium. Calcitic lime provides only calcium and is suitable for soils with adequate levels of magnesium. Adding lime to acidic soils helps to reduce weed pressure from both grasses and broadleaf weeds (dandelions and creeping Charlie). Limestone can be spread by hand or by a bulk spreader.

Liquid Seaweed Concentrate is a seaweed solution containing readily available nutrients (NPK: 0-0-1) and over 80 trace minerals. Mixed with irrigation water, seaweed emulsion provides readily available nutrients and micronutrients to seedlings, transplants and field crops. Spray in early morning or evening, and not under full sun.

Soybean meal (6% N) and **flax meal** (5% N) are expensive vegetable sources of nitrogen. Fall or early spring applications will provide nutrients by early summer. The dry meal flows well in a broadcast spreader or fertilizer box.

Spanish River Carbonatite is mined from a volcanic deposit in northern Ontario. It improves the CEC of the soil, and provides calcium, phosphorous, potassium, vermiculite and many trace minerals. Apply at a rate of 1 kg per square meter in gardens and lawns, to several hundred pounds to one ton per acre in field crops. It is wet and is best spread by hand or using a large lime spreader.

Organic sugar is the essential food of micro-organisms. Plants produce sugar from photosynthesis and the roots exude sugar to feed the microbes (in exchange for nutrients). Stimulate microbial activity and nutrient release with sugar in the soil in the spring.

Sul-Po-Mag (langbeinite or K-Mag) contains 22% potassium (which is readily available for plants), 11% magnesium, and 22% sulphur.

3-1-3 Fertilizer is a Homestead Organics blend of organic grain meal and natural rock powders. This blend provides organic matter and nutrients for houseplants, lawns, and gardens. NPK analysis is 3-1-3. Custom recipes can also be made to suite your needs.

Note: Consult the Homestead Organics price list for formats and pricing of all farm supplies. More detailed information is available for most items. Verify suitability with your organic certifier.