

A Brief Organic Fertilizer Primer

N, P, & K Fertilizer labels have 3 numbers on their label which describes how much Nitrogen, Phosphorus, and Potassium are in the product. For example, a typical chemical fertilizer is 16-16-16, which means it contains 16% N, 16% P, and 16% K. This means that in a 50# bag, 16% of that bag would be 8#, so there are 8# each of N, P, & K in that bag.

Nitrogen promotes shoot, stem, and leaf growth. This will make plants get taller and leafier. This is the major nutrient used for grass, trees, fruiting shrubs/vines, and leafy green vegetables. Too much nitrogen can make plants get too tall, leggy, and leafy, with too few fruits. Nitrogen moves through the soil relatively quickly, so of the three nutrients it is often applied the heaviest and most often (leads to leaching, pollution). Examples of Nitrogen rich natural soil amendments: Feather Meal, Fish Meal, Blood Meal, or Seed Meals (cottonseed, flaxseed, or soybean meals).

Phosphorus promotes development of the actual fruit or vegetable part of the plant. It aids the development of the reproductive organ of the plant, like the apple, tomato, or cucumber. Phosphorus also promotes flowering, so gardeners make sure to add phosphorus to get big and bountiful blooms. Phosphorus is neither particularly fast nor slow to leach through the soil, but most edible crops require it, so it is applied relatively often. Phosphorus is found in Rock Phosphorus, Bone Meal, Fish Bone Meal, and liquid fish.

Potassium is needed in the lowest amount of these nutrients. Most soils already have sufficient potassium, and since it moves very slowly through the soil it is best to add little or none unless you have done a soil test and you know that you need it. Potassium promotes root development and growth, and has some effect on plant sexual reproduction (fruit/flower development). High Potassium can tie up other nutrients and make them unavailable. Potassium can be obtained from Kelp meal, Greensand, K-Mag, or Sulfate of Potash.

Trace Minerals – TMs are minerals that are very important to plant life, that are needed in lower amounts than N, P, or K. They are very important for growing healthy, tasty, fragrant, colorful, nutritious, vigorous and stress resistant plants. Plants that have access to adequate trace minerals are able to live up to their genetic potential. Soil Amendments containing Trace Minerals are: Azomite, Kelp, Greensand.

PLEASE DO A SOIL TEST! Prevent over-fertilization, save money, and be a successful gardener or farmer! We recommend Brookside Labs <http://www.blinc.com>. The local extension service will help you interpret test results. See more information here <https://www.uaf.edu/ces/districts/kenai/soiltesting.php>

FEED THE SOIL, WHICH FEEDS THE PLANT

We believe in feeding the beneficial organisms in the soil (fungi, bacteria, earthworms), who feed the plants. Microorganisms break down organic fertilizers into plant available forms which the plants may take up as they need to. These nutrients are held in stasis in the soil until they are needed. Microorganisms create porosity in the soil, which keeps it well drained and hospitable to plant roots. Organic matter, from compost or cover crops, along with minerals and natural fertilizers, are the food these microorganisms need to live. If your soil is lacking microorganisms or organic matter, both may be reintroduced, and a healthy soil life-cycle may be reestablished. Till are rarely as you can, tilling can actually be destructive to established, healthy organic/natural soil systems. Rather than tilling, add organic soil amendments when planting, or “top-dress”.



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Cottonseed	5-2-1
Flax seed	6-0-0
Soy meal	9-0-0
Blood meal	13-0-0

Fish bone	5-10-1
Bone meal	3-15-0
Rock Phos	0-3-0

Kelp Meal	0-0-3
Greensand	0-0-3
K-Mag	0-0-20
Sulf of Potash	0-0-50

Greensand	0-0-3
Kelp	1-0-8

Guide to Natural Soil Amendments

Alfalfa Pellets (2-1-2) Alfalfa is a good fertilizer for most plants & lawns. It adds a little nitrogen, some vitamins & minerals, and organic matter into the soil. Organic matter added to the soil feeds micro organisms who in turn feed plants roots, and create spaces in the soil for air & water.

Cottonseed Meal (5-2-1) A by-product of cotton manufacturing, cottonseed meal is slow release and acidic. Cottonseed meal feeds nitrogen, potash, phosphorus and other minor nutrients over a period of time, eliminating runoff and promoting vigorous growth of vegetables, landscape plants and turf.

Fish Bone Meal (5-10-1) Fish Bone adds a lot of Phosphorus and a bit of Nitrogen. This is the most Phosphorus rich natural fertilizer. It's pretty smelly, but the plants don't seem to care.

Greensand (0-0-3) This powdered rock material provides slow release nutrients, such as potassium and other trace minerals. It also helps loosen compacted soil.

Gypsum Gypsum adds calcium & sulfur, both essential plant nutrients, to the soil without altering the soil pH. The best thing about Gypsum is that it will naturally break up clay soils over time. Add Gypsum at the rate 50# to 500-1500 sq ft to loosen up clay soils. Use gypsum, specifically the Calcium component in the Gypsum, to prevent blossom end rot in tomatoes, if your soil pH is already good and doesn't need to be changed.

Kelp Meal (1-0-8) Kelp meal is wonderful fertilizer and all plants seem to love it. It is a very mild fertilizer that provides a little Potassium, many Trace Minerals, Vitamins, Growth Hormones, and other natural substances.

K-Mag (0-0-20) K-Mag is a potassium fertilizer, also containing magnesium and sulfur. Neutral in pH, K-Mag PREMIUM does not contribute to additional soil acidity. The rapid solubility of the product is a special benefit in the production of short-season crops, especially in areas with cold soils and limited rainfall or irrigation.

Rock Phosphate (0-3-0) Soft Rock Phosphate contains valuable trace minerals in addition to phosphorus. Once applied, rock phosphate remains in the soil until used by the plants – will not leach. Ideal for fruiting and flowering plants, it stimulates strong root formation, hastens crop maturity and encourages earthworms and soil bacteria.

Soybean Meal (9-0-0) This is a time-tested natural fertilizer. Soybean Meal is a great Nitrogen fertilizer for all plants, and it is available as non GMO. It can be smelly as it breaks down.

Lime (Calcium Carbonate, Magnesium Carbonate)

Lime corrects the pH in Acid soils, which most of us have in Alaska. We carry several forms of lime that are suitable to your gardens and landscapes. Add lime 50# to 500-1500 sq ft to counteract soil acidity. Lime also prevents moss in grass, and the calcium part of lime prevents blossom-end rot in tomatoes. There are two kinds of lime:

- Calcium Carbonate limestone is known as Ag lime. This is the type of limestone that we recommend and use.
- Dolomite Limestone is made of Calcium Carbonate & Magnesium Carbonate. Most soil tests will specify Dolomite lime, but if you look at the Magnesium component of the test it may not be lacking. Magnesium moves very slowly through the soil and becomes problematic when levels are too high because it binds with other minerals, making them unavailable to plants.
- Both Calcium Carbonate Lime & Dolomite Lime are available in Pelletized or Prilled forms, which go through drop spreaders and aren't so dusty. These also cost more.
- Oyster Shell – is made of Calcium Carbonate and may be used like lime.

Perlite This light, volcanic material increases soil permeability and drainage and helps with aeration. It's most commonly used as an additive in potting soils and to make the soil very light for fragile plant roots.

Vermiculite Vermiculite lightens soils much like perlite, but it also helps soil hold moisture. Vermiculite can make clay soils too soggy, but it can increase the water retention of sandy soils. It's also great for containers.

Diatomaceous Earth D/E is used for natural insect control. It is chemically inert and harmless, but it shouldn't be inhaled. It won't harm people or animals (unless inhaled), but it causes insects to dehydrate & die!