### Different Types of Fertilizers

The different types of fertilizers with all its specifications and cautions that should be kept in mind should not detract us from the joys of gardening. Thus to make it easier on most gardeners and since this website is dedicated to the home gardener and growing our own gardens the following section is geared towards the home gardener.

The different types of chemical and organic fertilizers that are usually commercially available in most countries can be categorized further into:

* **Complete inorganic fertilizers**: – these types of inorganic fertilizers contain all three major macronutrients, Nitrogen (N), Phosphorous (P) and Potassium (K). On the containers you will find that these macronutrients are depicted as a ratio, e.g. 2:3:2 (22). Complete inorganic fertilizers are usually applied at a rate of 60g/m2 or roughly 4 tablespoons per square meter.
* **Special purpose fertilizer**: – these types of fertilizer are formulated especially to target certain plants' requirements or certain soil deficiencies. Of the examples that come to mind here are the Blue Hydrangea Food, and straight fertilizer that is made up of one particular plant nutrient for example lawn fertilizer.
* **Liquid fertilizers**: – these types of fertilizer come in a variety of formulations and even include organic fertilizer, complete fertilizer as well as special purpose fertilizer. Some examples of liquid fertilizer are Nitrosol and African Violet Food.
* **Slow-release fertilizer**: – these types of fertilizer are formulated to release their nitrogen at a steady pace. On the packs of this fertilizer that are available commercially it will usually be depicted as 3:1:5 (SR) where the SR indicates slow-release.
* **Fertilizer with insecticide**: – these types of fertilizer that are prepared and combined with an insecticide. One such example is Wonder 4:1:1 (21) + Karbaspray.

**Chemical Fertilizers:**

Chemical fertilizers are inorganic materials which are partly or wholly synthetic. Chemical fertilizers are added to the soil to increase the nutrient levels in order to support the optimal growth of plants. Chemical fertilizers contain the major plant nutrients nitrogen, phosphorus and potassium in different ratios according to specific soil needs. Also. the nutrients supplied by chemical fertilizers are immediately available to the plants as opposed to the organic fertilizers derived from natural sources which are more of a slow-release nature. Chemical fertilizers are often more cost effective and can be used in concentrated forms.

**Start from here:**

**Sodium Nitrates**

* Sodium nitrate is also referred to as chilates or Chilean nitrate and contains refined nitrogen in amounts up to 16 percent. This makes the nitrogen immediately available to the plants and is one of the most valuable sources of plant nitrogen. Using sodium nitrate in the soil is particularly beneficial for young plants and garden vegetables. Acidic soils benefit the most with the addition of sodium nitrate. Sodium nitrate should not be used in excess as it can damage plants.

**Ammonium Sulphate**

* Ammonium sulphate is sold as a white crystalline salt with 20 to 21 percent ammoniacal nitrogen. The fertilizer is easy to store in large amounts in dry areas but is likely to form clumps during wet and humid weather. These lumps need to be ground before use. Ammonium sulphate is water soluble and the nitrogen in the fertilizer is retained in the soil particles. The chemical is likely to produce an acidic effect on soil and consistent long term use can lead to an increase in soil acidity. It is therefore advised to use ammonium sulphate with organic manures if long term use is planned. Ammonium sulphate can be used before or during sowing time or as top-dressing. Do not use too close to the seeds since concentrated amounts can affect germination.

**Ammonia**

* Ammonia is a liquid gas form of chemical fertilizer consisting of 80 percent nitrogen. The fertilizer is available as a liquid since, under optimal pressure and temperature, ammonia becomes liquid. Aqueous ammonia is another form of ammonia fertilizer obtained from mixing ammonia with water. Both forms of ammonia fertilizer are used by adding to irrigation water or into the soil with specially devised containers. Ammonia is not recommended for use by the home gardener as its use and application is cost effective only when used on a larger scale.
* **Urea**
* This type of fertilizer usually is available to the public in a white, crystalline, organic form. It is a **highly concentrated** nitrogenous fertilizer and fairly hygroscopic. This also means that this fertilizer can be quite difficult to apply. Urea is also produced in granular or pellet forms and is coated with a non-hygroscopic inert material. It is highly soluble in water and therefore, subject to rapid leaching. It is, however, quick-acting and produces quick results. When applied to the soil, its nitrogen is rapidly changed into ammonia. Similar to ammonium nitrate, urea supplies nothing but nitrogen and the application of Urea as fertilizer can be done at sowing time or as a top-dressing, but should not be allowed to come into contact with the seed.

**Ammonium Sulphate Nitrate**

This fertilizer type is available as a mixture of **ammonium nitrate** and **ammonium sulphate** and is recognizable as a white crystal or as dirty-white granules. This fertilizer contains **26%** nitrogen, three-fourths of it in the ammoniac form and the remainder (i.e. **6.5%**) as nitrate nitrogen. Ammonium Sulphate Nitrate is non-explosive, readily soluble in water and is very quick-acting. Because this type of fertilizer keeps well, it is very useful for all crops. Though it can also render garden soil acidic, the acidifying effects is only one-half of that of ammonium sulphate on garden soil. Application of this fertilizer type can be done before sowing, at sowing time or as a top-dressing, but it should not be applied along the seed.

**Rock Phosphate**

As a type of fertilizer, rock phosphate occurs as **natural deposits** in some countries. This fertilizer type has its advantages and disadvantages. The advantage is that with adequate rainfall this fertilizer results in a long growing period which can enhance crops. Powdered phosphate fertilizer is an excellent remedy for soils that are acidic and has a phosphorous deficiency and requires soil amendments.

However, the disadvantage is that although phosphate fertilizer such as rock phosphate contains **25 to 35%** phosphoric acid, the phosphorous is insoluble in water. It has to be pulverized to be used as a type of fertilizer before rendering satisfactory results in garden soil. Thus it is not surprising that Rock Phosphate is used to manufacture superphosphate which makes the Phosphoric acid water soluble.

#### Superphosphate

Superphosphate is a fertilizer type that most gardeners are familiar with. As a fertilizer type one can get superphosphate in three **different grades**, depending on the manufacturing process. The following is a short description of the different superphosphate fertilizer grades:

* **Single superphosphate** containing 16 to 20% phosphoric acid;
* **Dicalcium phosphate** containing 35 to 38% phosphoric acid; and
* **Triple superphosphate** containing 44 to 49% phosphoric acid.

Triple superphosphate is used mostly in the manufacture of concentrated mixed fertilizer types.

The greatest advantage to be had of using Superphosphate as a fertilizer is that the phosphoric acid is fully water soluble, but when Superphosphate is applied to the soil, it is converted into soluble phosphate. This is due to precipitation as calcium, iron or aluminum phosphate, which is dependent on the soil type to which the fertilizer is added, be it alkaline or acidic garden soil. All garden soil types can benefit from the application of Superphosphate as a fertilizer. Used in conjunction with an organic fertilizer, it should be applied at sowing or transplant time.

**Slag**

Basic slag is a by-product of steel mills and is used as a fertilizer to a lesser extent than Superphosphate. Slag is an excellent fertilizer that can be used to amend soils that are acidic because of its **alkaline reaction**. For slag application to be an effective fertilizer it has to be pulverized first.

**Bonemeal**

Bonemeal as a fertilizer type needs no introduction. Bone-meal is used as a phosphate fertilizer type and is available in two types: raw and steamed. The **raw bone-meal** contains **4%** organic Nitrogen that is slow acting, and **20 to 25%** phosphoric acid that is not soluble in water. The **steamed bone-meal** on the other hand has all the fats, greases, nitrogen and glue-making substances removed as a result of high pressure steaming. But it is more brittle and can be ground into a powder form. In powder form this fertilizer is of great advantage to the gardener in that the rate of availability of the phosphoric acid depends on its pulverization. This fertilizer is particularly suitable as a soil amendment for acid soil and should be applied either at sowing time or even a few days prior to sowing.

**Muriate Of Potash**

Muriate of potash is a **gray crystal** type of fertilizer that consists of **50 to 60%** potash. All the potash in this fertilizer type is readily available to plants because it is highly soluble in water. Even so, it does not leach away deep into the soil since the potash is absorbed on the colloidal surfaces. (TIP: Apply muriate of potash at sowing time or prior to sowing.)

**Sulphate Of Potash**

Sulphate of potash is a fertilizer type manufactured when potassium chloride is treated with **magnesium sulphate**. It dissolves readily in water and can be applied to the garden soil at any time up to sowing. Some gardeners prefer using sulphate of potash over muriate of potash.