

Back to Basics.

A beginners guide to understanding fertilisers.

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The right fertiliser, given to the right crop, in the right quantity, at the right time, can make a big difference to crop quality, flavour and yield. Plants need a healthy diet to grow, just like us. They can feed themselves to some extent, combining carbon dioxide from the air, water from the soil and energy from the sun to form carbohydrates.

But these are only for energy storage, as sugar, starch and fats (or inedible cellulose and lignin). To make other growth chemicals they need different elements, usually derived from the soil. Most of our soils, especially fertile, well cared for soils, contain enough of these for plants to grow but we add fertilisers for various reasons. We may expect more from our plants than they would normally grow to by obtaining nutrients from the soil, in terms of bigger flowers veg and fruit.

Often we grow plants in artificial conditions, such as in pots, containers, raised beds, and in composts made from all sorts of materials. In general, if you grow your plants in the soil in the garden especially one that has been cared for, fertilisers are a bonus , not a necessity. But when you grow in containers, fertilisers are essential.

You can apply fertilisers as solids (granules) or as a liquid. Plants react quicker when they are applied as a liquid, as plants only take up liquids, not solids, through a process called osmosis. Liquids do not last as long as solids , so have to be applied more frequently. Most useful for container plants which have to be watered regularly anyway. Solid fertilisers may last for a few weeks or a few months but are only effective when the soil is moist and they break down into a liquid form, so the nutrients are washed around the plants roots. They can be added to the soil in Spring, or throughout the growing season. They are not ideal for containers because you don't know when they begin to release their nutrients or when they run out. Use liquid or controlled release fertilisers in pots, containers etc.

Most fertilisers contain the three basic elements, Nitrogen (N), Phosphorous (P) and Potassium (K)

Nitrogen

The leaf maker, easily leached out by watering and winter rains.

To correct any deficiency use;

Organic

Dried blood , quick acting

Hoof and Horn, slow acting

Inorganic

Nitro Chalk

Nitram

Sulphate of Ammonia

Phosphorous/Phosphates

Encourages healthy growth and strong roots, long lasting in soil, little needed.

To correct any deficiency use

Organic

Bone meal

Fish Meal (also contains Nitrogen)

Inorganic

Superphosphates.

Potassium or Potash

Promotes ripening of flowers and fruit and vegetables, and encourages better and deeper colour.

To correct any deficiency use;

Organic

Rock potash

Wood ash (also contains some phosphates.

Inorganic

Sulphate of potash

The above is not a comprehensive list of what is available, there are many others, but it gives you a flavour of some of the more common ones.

However , many firms supply fertilizers that supply all 3 main plants foods (NP&K) , in varying proportions and some include trace elements. i.e.

Blood fish & Bone is a complete organic plant food.

National growmore is a balanced (7-7-7) inorganic plant food.

However, there are many others including, poultry manures in pelleted form, (rooster), and other concentrated organic feeds.

There is a bewildering choice of liquid plants foods available, both general purpose, and plant specific, some are a complete plant food , others supply just one element only.

Trace elements whilst extremely important are required in minute quantities, please see article from W John Davies elsewhere in this magazine.

The purpose of applying manures and fertilizers is to;

A) Manures provide essential humus, can be any organic waste material, which not only provides bulky matter to improve the physical structure of your soil, but is gradually broken down by soil bacteria into plant foods. Helps to get your soil into good "heart"

B) Fertilizers, liquid or solid, organic or inorganic, are to provide additional plants foods that humus alone may not supply in sufficient quantities, or in the correct proportions to meet specific vegetable needs.

To be organic or not – that is the question.

There have been many articles and debates on the merits or otherwise of growing organically, the purpose of this article is not to persuade you either way but just to give you the facts. It has been proven beyond doubt that organically grown vegetables have no better flavour or nutritional value than those grown inorganically, but of course that is only half the story . Food miles, carbon footprint, the effect on your soil, the use of chemicals either as a feed or insecticide, or any other growth stimulant that may leave residues in what you are eating, or leach into waterways etc., are all factors to be taken into consideration. We are all better educated/informed these days, and parents particularly need to know exactly what they are feeding their children on.

Organic fertilisers are made from things that have been alive. Although anything organic sounds nice and friendly, when it comes to fertilisers it means you will be sprinkling dried blood, ground up bones and powdered fish over you veg.

These substances are then broken down into simpler chemicals by soil dwelling bacteria and fungi, before plants get any benefit. Plants only "drink" inorganic substances. By applying organic fertilisers you do not necessarily benefit your plants directly as far as the three main elements are concerned. But, and it is a big but, organic fertilisers improve the health of your soil by increasing fungi and bacterial activity.

Making comfrey liquid or using liquid from a wormery ,will supply beneficial but unquantifiable nutrients until it is broken down. If the benefit is in direct relation to its awful smell, it should be fantastic stuff!

To summarise therefore;

- a) If you do not feed plants that you continually take crops from, you can't expect great results.
- b) Plants should be fed little and often, apply liquid feed once a week in the growing season to any plants in pots, containers etc.
- c) Do not feed when perennial plants are dormant, they cannot take up the feed and you are wasting your money.
- d) Any feed is better than none.
- e) Always add liquid feed at the correct dosage, or weaker but never stronger. If the solution in the compost/soil is stronger than that in the plant cells, you will cause osmosis in reverse and the plant will collapse.
- f) Manure and garden compost improve the soil structure and are beneficial. They help the soil retain nutrients, and provide food for bacteria, but are not a high source of nutrients.
- g) Liquid feeding is good for fast growing crops such as salads, peppers and tomatoes etc.
- h) Never guess at the level of fertility in your soil, or which element may be lacking, do a soil test, either yourself, or send a sample away for professional analysis.
- i) Your plants do not care if the fertiliser you apply is organic but your soil might. Bacteria, soil fungi and other organisms are encouraged by organic fertilisers.