

Virtual Organic Garden

Week 4 Manures, Green Manures, Composts, Organic Fertilisers and Liquid Feeds.

HERE ARE THIS WEEKS QUESTIONS TO PONDER ON BEFORE YOU READ THE TEXT BENEATH!

1. Can you remember the main plant nutrients?
2. Which organic matter is worth adding to the soil?
3. What's in farmyard and stable manure and how should we use it?
4. What do you know about the nutrients in Garden Compost?
5. What is Mushroom Compost and how should you use it?
6. How do you make Leaf Mould and where would you use it?
7. If you must use Peat, where should you use it?
8. What about collecting and using Seaweed?
9. What is Shoddy and where can it be used?
10. How can you use sawdust and shredded bark?
11. What are Green Manures and how are they useful?
12. What do you know about Liquid Manures?

Can you remember the main plant nutrients?

There are three nutrients that are needed by plants in larger quantities than the other elements. These are nitrogen (N), phosphorous (P) and potassium or potash (K).

Travelling around the UK you'll often see evidence of intensive farmer's fertilisers. Plastic sacks, with the letters NPK conspicuously marked on them, will tell you what they used to contain.

Near the letters will be numbers such as "3; 6; 9." These numbers indicate the percentage of the total fertiliser weight of each of the three main nutrients. "Growmore," a readily available general purpose garden fertiliser contains 7%N, 7% P and 7%K.

However for organic growers most of these nutrients are going to be supplied by soil organisms degrading organic matter.

Which organic matter is worth adding to the soil?

There are a variety of common materials that organic growers could add to their soil. These include manure, garden compost, mushroom compost, peat, seaweed, and leaf mould.

What's in farmyard and stable manure and how should we use it?

Manure is a term for the dung, urine and bedding material from farmyard animals. Most manure is bulky and will add some N, P and K to the soil.

However, take care. "Fresh manure" can damage plants, both leaves and roots, if applied too soon.

It is best to store it under cover for at least three months before using. Don't let rain water leach out the nutrients while it is maturing!

How much can you put on your soil?

The simple answer is that you'll have to guess! Manures vary greatly in their NPK content. Some books recommend an application rate of a bucketful per sq. yard while others suggest a more generous amount. Sandy soils probably need more than clay soils. Manure is acidic and is particularly useful with potatoes.

A sensible compromise is to use the stuff wisely! Spread what you've got so that the plants, which could benefit from it, get some!

What do you know about the nutrients in Garden Compost?

The process of making good garden compost will be looked at in more detail in a subsequent article.

Although the content of the main plant nutrients (NPK) in garden compost is usually lower than commercial chemical fertilisers it is often higher than manure. The nutrients are released more slowly

and improve soil structure. So the best rule is to make as much of the stuff as you can and share it among the plants that need it by digging it in or using it as surface mulch.

What is Mushroom Compost and how should you use it?

Mushroom compost is usually a mixture of composted straw, chalk (lime) plus a few additives such as dried blood! When horses were more common, their manure was an alternative ingredient to composted straw.

Mushroom compost will add smaller amounts of N, P and K to the soil than garden compost. Like compost, its fibrous structure will help improve the structure of the soil so welcome the stuff if you're offered it.

However, remember the lime in it! It should be used on the legumes or brassicas in your rotation. Don't put it on or beneath your potatoes.

How do you make Leaf Mould and where would you use it?

Leaf mould is a useful material for improving the structure of the soil. Collect fallen leaves in the autumn. Store them separately from the compost heap. They'll decompose very slowly. Keep the leaf mould moist. It will gradually compact and significantly reduce in volume.

Leaf mould only contains tiny amounts of the main nutrients. When it's two or three years old use it as an ingredient in home made seed compost, or, as mulch or soil structure improver.

If you must use Peat, where should you use it?

Peat is produced from plant remains of mosses or grasses that have decomposed in a poorly drained environment. These marshy areas are the habitat of a wide range of animal species. Using the stuff damages those habitats and helps eliminate wildlife. So have a conscience if you use it.

However, because it is more pleasant to handle than many other organic materials it is widely used. It contains miniscule amounts of the main plant nutrients and is mainly used in seed composts. Make a resolution get a supply of leaf mould, make your own seed compost. Then, you won't need peat and you can preserve those other habitats!

What about collecting and using Seaweed?

You probably won't do too much environmental damage if you collect a small amount of the seaweed dumped at the high water mark occasionally when you visit the beach. Please don't pull it off rocks and destroy growing habitats.

Seaweed is a good supply of potash (K). It might be best to leave it standing on a hard surface on a rainy day to dissolve the salt. Then, put small layers in the compost heap or bury it beneath your potatoes or tomatoes. Some gardeners add it to their asparagus bed.

What is Shoddy and where can it be used?

Shoddy was a term used to describe the waste from woollen mills. In sheep rearing areas there are often "dag ends" (soiled clippings from a sheep's bottom) and occasionally whole fleeces available for composting. The material is very rich in nitrogen and releases the nutrient slowly. It's good under fruit bushes!

How can you use sawdust and shredded bark?

There are a few other easily obtainable organic materials that have a place in an organic garden but probably not dug INTO the soil.

You might be offered sawdust or shredded bark. Both could be used as a surface mulch to suppress weeds but should not be dug into the soil.

What are Green Manures and how are they useful?

Green manures are really useful. You can grow them when soil is not productive. The advantages of growing them include:

- some are legumes (e.g. clover, field beans, alfalfa, winter tares and trefoil) and with the aid of bacteria can harvest nitrogen from the air;
- they can retain soil fertility, so nutrients are not washed out by rainfall;
- some have deep root systems that mine nutrients leached into the subsoil;

- they protect soil structure by stopping rain from beating down on bare soil;
- they smother weeds and create a temporary haven for beneficial predators (e.g. frogs and beetles);
- when the foliage is dug into the soil it feeds soil organisms;
- the root systems improve soil structure;
- many, such as phacelia, lupin and red clover, look attractive if you allow a few plants to flower and set seed.

Green manure seed is generally broadcast over a smooth growing area. The soil containing the seeds is lightly raked and gently firmed to ensure the seeds make good contact with the soil. The seeds are left to get on with the job.

Before the green manure plants flower, cut the foliage just above the surface of the soil. In winter you can leave the debris as mulch. At other times dig the foliage into the top 6 to 8 inches of soil.

Let the soil organisms ingest the material and plant your crops a few weeks later.

Which green manures should you buy?

Most organic seed catalogues sell many varieties of green manure seed. If club root is a problem you might want to avoid planting mustard. It is a brassica.

Phacelia has advantages over several other crops as it is not related to any of the common vegetable plants and can fit anywhere in the rotation. It also has attractive foliage and flowers and it is easy to collect and save seed. You might like to avoid monocultures and grow a combination of green manures. Combinations often grow a better mass of foliage.

You may not need to buy green manure seed?

Some gardeners have a different attitude to green manure. Gardeners have used a surplus of leafy crops, such as rhubarb and celery, as a surface mulch of green manure. Others just accept that weeds are a natural green manure. Many organic farmers plough in temporary grassland and choose to feed the soil organisms that way.

What do you know about Liquid Manures?

It is possible and sensible to make some organic liquid manure. These are made by soaking organic matter in a large volume of water (a barrel!). The liquid which results is usually evil smelling and needs diluting with many more times its volume. It can be watered onto plants.

Comfrey, nettles and manure are all frequently used.

Comfrey liquid is rich in potash whilst liquid animal manure is rich in nitrates. Nettles provide a more balanced feed.

All are great for giving plants a growth boost when pests and diseases may be lurking.

Estimate of NPK content of various organic fertilisers.

Organic Fertiliser	Content			Appropriate use
	N%	P%	K%	
Compost(1)	1.5	2	0.5	Before planting any crop except some roots
Horse manure(2)	0.7	0.2	0.5	Use on the potato area. If well rotted bury, otherwise use as a mulch.
Cow/Farm manure(2)	0.6	0.2	1.0	
Sheep droppings(2)	0.7	0.3	0.9	Use in a liquid manure
Poultry droppings(2)	1.5	1.0	0.5	Usually in small amounts. Add to compost heap
Leafmould(1)	0.5	0.25	0.25	Use in seed compost
Peat(1)	0.75	tiny	tiny	Avoid or use in seed compost only
Seaweed(1)	0.25	0.25	0.5	Use with potatoes, tomatoes or in compost
Shoddy(1)	10	tiny	tiny	Slow to break down. Use under potato or legume area
Mushroom compost(1)	0.5	0.25	0.5	Remember contains lime. Use to improve soil structure but keep away from the potatoes
Woodash(1)	0	0	5 - 10	Use around fruit or tomatoes. Remember fresh ash is alkaline. Store in a dry place and use under potatoes.
Bonemeal(1)	4	22	0	Use under permanent plants. E.g. Fruit trees

Green Manures(3)

Name	Sowing	In soil	Conditions	Legume	Sowing g, per sq.m.
Alfalfa	April-July	1 year	Avoid acid and wet soil	Yes	2
Field beans	Sept-Nov	overwinter	Heavy soil	Yes	20
Buckwheat	April- Aug	1-3 months	Likes poor soil	No	6
Clover	March-Aug	2-3 months	Sandy soils	Yes	3
Fenugreek	March-Aug	2-3 months	Well drained	Fixes some N	5
Lupin	March-June	2-4 months	Sandy soils	Yes	10
Mustard	March-Sept	1-2 months	Fertile soils	No(brassica)	5
Phacelia	March-Sept	1-3months	Most	No	2
Hungarian or Grazing Rye	August-Nov	overwinter	Most	No	16
Winter Tares	March-Sept	2-3 months	Avoid acid and dry soil	Yes	16
Trefoil	March-Aug	3 months	Light dry soils	Yes	3

Liquid Manure(2)

Comfrey. Potash rich. Dilute liberally
 Nettle. Nitrogen and Potash. Dilute liberally
 Sheep tea. Nitrogen rich. Dilute to the colour of weak tea
 Seaweed solution. Available in garden shops. Follow instructions.

Remember "Growmore" Garden Fertiliser = 7%N,7%P,7%K.

Sources

1. *The Garden Expert series*
Dr. D.G. Hessayon
2. *The Organic Gardener's Handbook* Elphinstone and Langley
3. *Organic Way* HDRA member's magazine