



“Healthy Soil, Less Toil” – Helpful Tips

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Organic material (compost) – definition

Uses: blends particles together, provides spongy texture protecting soil from erosion and drought, holds moisture in, feeds earthworms and contains at least half nutrients required by plants. For heavy soils, addition thereof can increase yield by 44-77% especially in heavy clay soils. Beneficial fungi and earthworms grow in composted soil that will fight nematodes and other bad soil pests. Compost will hold 6 times its weight in water. Has been found to stop plants from absorbing pollutants. Ultimate recycling.

To balance pH for optimum growing : use natural fertilizers:

Macronutrients: carbon, hydrogen, oxygen, nitrogen, phosphorous, potassium, calcium, magnesium, sulphur.

Micronutrients: Boron, iron, copper, zinc, chlorine, manganese, molybdenum, selenium.

NPK: **N**itrogen- for growing leaves; **P**hosphorus- for root growth; **K**alium – aka Potassium- for overall growth and flowering and seeding

Animal manures – never use fresh as they will burn the plants. Also sawdust may use up all the nitrogen in the soil to break it down, and straw, hay, grass etc may grow and contain weed seed. Use well rotted – i.e. a year old at least.

NPK of animal manures

Animal	%age N	%age P (as P2O5) (phosphorous)	%age K (as K2O) (potassium)
Horse	.66	.23	.68
Cow	.57	.15	.53
Pig*	.56	.32	.52
Sheep	.90	.34	1.00
Chicken (pure)	.97	.77	.41

*Pig manure can contain harmful organisms – dependent on what it has been fed

Earthworm (vermicompost – worth its weight in gold!)

Organic fertilizers

Bone meal – for lack of phosphorous 2-14-0

Blood meal – nothing but nitrogen : 12-0-0.

Fish meal – good contains micronutrients 5-2-2+ use diluted according to instructions

Kelp – as for fish meal. Contains iodine as well

Straw – use in compost or as a mulch – nearly inert

Shavings / sawdust – use in compost but they will destroy nitrogen by using it to break themselves down.

Wood ash – good for acidic soil and lack of calcium

Granite meal(dust), rock phosphate, colloidal phosphate – all for lack of P or K

Green sand – from sea floor – use in compost pile with high N additive; has trace elements.

Green manure

Sowed late in the fall, green manures are crops that will enhance the soil next season – either by bringing nitrogen fixing bacteria to the site, or when dug in by becoming “green compost”. Buckwheat, winter wheat and rye and oats are the most common. Do not grow alfalfa if you are not a farmer: *it is invasive*. Other green manure of interest – comfrey (symphytum) – large plant with hairy leaves - brew comfrey tea from the leaves and use as a compost tea.

Useful websites and other tips :

1. <http://www.thegardenhelper.com/soilPH.htm> :Soils, pH, composting – it’s a very useful website. Beware – he is talking of many hardiness zones to the south of us in his monthly guides!
2. *Harrowsmith* guides and back issues of the magazine. There is also a book published in 1982 called the *Harrowsmith Northern Gardener* by Jennifer Bennet – published by Camden House. It is really good on soils and a mine of info on vegetables and herbs.

Tip 1 *Try not to walk on your beds* - it compacts the soil too much . Only make your bed as wide as you can reach from either side.

Tip 2 *Raising beds* can make for quicker use in spring – better drainage occurs in raised beds, so the soil is less wet .

Tip 3 *Mulching* after you have planted keeps the soil moist, weeds from growing, and soil warmer. Look at planting paper if you can afford it.

Vegetable space efficiency: In an ideal summer (dry and hot), where space is very limited this is what will give highest yield per plant /per sq foot in terms of food value and food \$ value, ease of growth, seed to harvest (time taken):

Vegetable	Rating
Tomatoes grown up supports (indeterminate varieties)	9.0
Green bunching onions	8.2
Leaf lettuce – eg romaine, mesclun	7.4
Summer squash, zucchini	7.2
Edible podded peas (sugar snap/ snow), onions (for dry storage)	6.9
Beans (pole or runner); Beets (grown for leaves AND roots)	6.8
Beans – bush – green or wax; Carrots; Cucumbers (grown on trellises)	6.5
Bell peppers	6.4
Broccoli ; Swiss chard	6.3
Cabbage	6.0
Sweet corn (very space intensive for only 1 or 2 cob return)	4.1

Potatoes take up 1 ½ feet square each so really are best only if you have lots of space

Animal resistant plants:

<http://www.planandplant.com/deer-resistant-plants.html>- flowers, shrubs. bulbs and trees

<http://www.deer-departed.com/deer-resistant-vegetables.html>- a really good all round site about veg, fences, fruit, flowers

Canadian Wildlife Federation site – all animals, but not very easy to get into.

Bugs:

<http://www.cog.ca/documents/RS14.pdf>- Canadian Organic Growers – a very comprehensive site