



“Out In The Garden”

Thursday, April 11th, 2012

Presenter: Alison Juta email: waterboroughfarm@gmail.com

506-362-1005 after 7PM and weekends

Soils and preparation

A successful garden starts with the right soil conditions, because all plants have their preferred growing conditions.

The **soil pH level** will affect how well plants utilize the total nutrients available in the soil. These nutrients are the building blocks the plant requires for successful growth.

Fertilizer – be it organic or inorganic is also vital as is **humus**

Successful growth cannot be achieved with inadequate or improper light amounts.

And even if these three growing conditions are ideal, **a garden will not thrive if it is over or under watered.**

Soil NOT Dirt! Dirt is what you vacuum from your carpet.

Soil is a combination of inorganic material derived from the underlying rock in your area, organic material, bacteria, fungi, plants and animals (living and dead) and all their chemical secretions, air and water, interwoven into a living matrix that provides anchorage and nutrients for the plants you want to grow. Without soil there would be no plants; without plants, there would be no life (as we know it) on this planet.

The **four major components** of soil:

Mineral matter refers to the inorganic elements in the soil e.g. stones, gravel and makes up to 40%-60% of its volume. This part of the soil usually originates from the bedrock that lies beneath the soil.

Organic matter (humus) is the decayed remains and waste products of plants and animals and has a great effect on the chemical properties of the soil e.g. availability of nutrients.

Water & Air - Almost 40%-60% of a soil's volume can be space and this is occupied by water and air.

Nourishment

Plants take all their nourishment in the form of soups from the soil, and very weak ones at that. To be available, plant food must be soluble to the action of the feeding root tubes; and unless it is available it might, as far as the present benefiting of your garden is concerned, just as well not be there at all. Plants take up their food through innumerable and microscopic feeding rootlets, which possess the power of absorbing moisture, and furnishing it, distributed by the plant juices, or sap, to stem, branch, leaf, flower and fruit. There is one startling fact which may help to fix these things in your memory: it takes from 300 to 500 pounds of water to furnish food for the building of one pound of dry plant matter. You can see why plant food is not of much use unless it is available; and it is not available unless it is soluble.

Read more: <http://www.articlesbase.com/gardening-articles/manure-vs-fertilizer-which-should-be-used-in-your-organic-vegetable-garden-392543.html#ixzz1Bs87eDYB>

Fertilizers typically provide, in varying proportions:

the three primary macronutrients: nitrogen (N), phosphorus (P), and potassium (K).

the three secondary macronutrients: calcium (Ca), sulfur (S), magnesium (Mg).

and the micronutrients (trace minerals): boron (B), chlorine (Cl), manganese (Mn), iron (Fe), zinc (Zn), copper (Cu), molybdenum (Mo) and selenium (Se).

NPK – the building blocks

What does each nutrient do? In addition to other properties, **Nitrogen** helps plant foliage to grow strong. **Phosphorous** helps roots and flowers grow and develop. **Potassium (Potash)** is important for overall plant health.

Be aware that high nitrogen fertilizers will make for quick growth but weaker plants that are more susceptible to attacks by diseases and pests. Fast, showy growth is not necessarily the best thing for your plants.

Manure

Animal manure contains most of the nutrients that crops require, including nitrogen, phosphorus, potassium, sulphur, calcium, magnesium, copper, manganese, zinc, boron and iron and “roughage” – straw and other materials that will bulk out soil and make it easier for good creatures such as worms, and bacteria to grow. However there can be problems with manure

Raw manure – will **burn plants to death**, especially chicken manure, also if it is mixed with shavings or straw they will use up all the available nitrogen in the soil to help break them down.

Weeds – it is difficult to stop weeds arriving within the manure, especially if it is fresh or unpasteurised.

Varieties of manures have different constituencies dependent on what the animals have been fed- thus some manure can be very poor in “attributable” food for the plants but great for helping de-clog clay soils , improving soil quality .Wait time – if you buy raw manure you will have to wait for it to rot.

Smells and bugs – raw manure can attract some really nasty bugs and can be very smelly.

Chemical fertilizers :

Can contain too much of one constituent and therefore either stop or stunt growth

Can affect soil and turn it too salty or leach straight through top layer and sit too far down for plants to reach the good bits.

Contain no “roughage” so does not improve soil quality

Can kill useful bacteria and worms etc. Can lead to environmental problems in water – such as eutrophication.

However

Easy to apply , no smell , can be used to correct imbalances (e.g urea)

see <http://en.wikipedia.org/wiki/Fertilizer>

pH balance

Most veg will grow in either slightly acidic or slightly alkaline soils . This in many ways is the basis of companion planting , apart from smells and bug attraction.

Neutral pH is 7.00. Most of NB soils are naturally slightly acidic,(5.5- 6.8pH) which is good for most vegetables. . . We'll talk more later about clay soil as it is very special.

Acid or Alkaline?

A soil's acidity or alkalinity is measured by its pH value on 14-point scale. Soil with a value of 7.0 is considered neutral. Lower pH values indicate acid soils, while values higher than 7.0 point to alkaline soils. According to horticulturists at Mississippi State University, most garden vegetables grow best in loamy, slightly acidic soils with a pH value in the range of 6.0 to 6.8. Most gardens don't have ideal soils, so gardeners usually must amend the soil for vigorous vegetable growth. Test your soil's pH with a commercial soil testing kit or through your county extension service. (RPC will do it here in Fredericton)

Growing Vegetables In Very Low pH Soil

You can amend very low pH soils -- those with pH values of 5.0 or less -- to support vegetable growth. Extreme acidity stunts root growth. Acidic soils are common in wet areas and in locations that experience heavy annual rainfall. If you're trying to raise a vegetable garden in a location where soils are typically highly acidic, you may amend the garden soil with lime, bone meal or wood ash to raise the pH level. Some vegetables, such as sweet potatoes and Irish potatoes, grow well in soils with pH as low as 5.0. We'll talk more later about clay soil as it is very special .

Amending Soils With High pH Levels

Highly alkaline soils are typically found in dryer climates and in locations such as the Great Plains. These types of soils, usually presenting a pH of 7.5 or higher, don't usually support vigorous vegetable growth unless they are amended. You can bring your alkaline soil pH down so its values are neutral to slightly acidic by mixing in some compost, peat moss or acidic organic mulch. Some vegetables that will produce well in amended soils with a pH value of around 6.8 are onions, cauliflower, asparagus and beets.

Growing Vegetables In Moderately Low pH Soils

Soils with moderately low pH, or with a pH measure of between 5.5 and 6.0, often support growth of vegetables as long as the soil is aerated, well-drained and nutritious. Clear and dig your garden in the fall to help aerate it. Avoid working it too early in the spring as that may compact it. Brussels sprouts, corn, eggplant, carrots, beans and peppers are some vegetables that you can grow in moderately low pH soils.

Read more: What are the Best PH Soils for Vegetables? | eHow.com http://www.ehow.com/list_7647100_ph-soils-vegetables.html#ixzz1BshwCAtn

Composting leaves and grass clippings : <http://greengta.ca/green-tips/how-compost-leaves-create-leaf-mulch-easily> (Toronto GTA good ideas)

Tree leaves contain up to 50 percent of the nutrients that the tree absorbed during the growing season, and as they break down, the nutrients are re-released back into the soil. In addition, leaves help to insulate the soil in winter and add important organic matter. All tree leaves (except black walnut) can be used: leaves from small trees, such as honey-locust and birch, can be raked directly onto beds, while larger leaves like maple and catalpa should be raked onto the lawn and run over several times with the lawnmower to shred them before using them as mulch.

Don't be too concerned about covering up your shade-loving plants with autumn leaves: they expect it. In spring, any areas that are heavily covered can be raked to fluff up the leaves, but as long as the leaf mulch is less than five centimetres thick, the plants will push right through.

Do's and don'ts

Do make sure leaves are healthy before using them as mulch.

Don't use leaves covered with powdery mildew, rust or tar spot.

Don't add mulch to rock garden plants like lavender and dianthus, as wet leaves against their stems will cause them to rot.

Mulching :

Maple leaves – do not put them on the garden fresh- they have growth inhibitors in them. Leave for a year in bags, and use when broken down.

Straw is better than hay – hay often has weed seeds in it

However, mulch apple trees with left over hay or hay that has spoiled and is not going to be used for animal feed – they do well with it.

Mulch strawberries with pine needles – the acid in the needles increases fruit yield, size and sweetness.

Mulch depths : Don't forget that a lot of these will alter the pH of your soil – often making it more acidic , and may use up the nitrogen in the soil to help them break down – so compensate

Fresh grass clippings – about 4 inches- they will pack down quickly

Hay – baled 5-6 inches. Loose about 8- 10 inches deep

Leaves – 8 to 10 inches

Newspaper – 5-8 sheets held down by stones or other mulch

Sawdust – 2-3 inches (remember this will use up all the nitrogen in the soil)

Wood chips – 6 inches without a liner, 2-3 inches if over newspaper.

Never use fresh manure on any part of your garden – let it rot first. Many manures especially chicken manure will burn your plants roots. But well rotted chicken manure will help plum trees bear big juicy plums.

Sprinkle horticultural lime between layers of leaf mold – it speeds up the break down of the fibres of the leaves.

Lasagna gardening - layering on top of soil instead of digging: two really good sites

<http://organicgardening.about.com/od/startinganorganicgarden/a/lasagnagarden.htm>

http://ourgardengang.tripod.com/lasagna_gardening.htm

- Don't remove the sod or do any extra work, like removing weeds or rocks.
- Mark the area for your garden using a water hose or a long rope to get the desired shape.
- Cover the area you've marked with wet newspapers, overlapping the edges (5 or more sheets per layer).
- Cover the paper with one to two inches of peat moss or other organic material.
- Layer several inches of organic material on top of the peat moss.
- Continue to alternate layers of peat moss and organic material, until desired thickness is reached.
- Water until the garden is the consistency of a damp sponge.
- Plant, plant, plant and mulch, mulch, mulch.
- Alison says: "Don't forget to put edging around your garden otherwise your heap will slowly spread out!"
- Organic material should be well rotted manure / compost otherwise you run the risk of masses of weeds!"

Double Digging

http://www.bbc.co.uk/gardening/basics/techniques/soil_digging1.shtml

<http://www.wikihow.com/Double-Dig-a-Garden>

Sowing and transplanting – helpful hints

Chamomile tea for damping off disease- make a litre of tea with 1 bag of chamomile and let it steep for 24 hours. If your seedlings are showing signs of damping off – flopping over and wilting, spray mist the mixture over them.

Checking for germination – beans, peas and other big seeds – place in a cup of water- discard those that float – they will not germinate. To test an older batch of seeds, wet two sheets of paper towel. Place 10 seeds of whichever batch you wish to test between the two moist sheets of paper. Wrap the paper up, place in a lock top clear plastic bag and place on a sunny window sill . Check daily for germination. The number of the seeds that germinate will give you a percentage of the total seeds that can be expected to germinate.

Seeds for onions, parsnips, parsley and corn – buy annually – they do not germinated easily after two years. Most other veg if stored correctly will last up to 4-5 years , but will slowly decrease in viability .

Sow bean seeds with hair or fur in the trench – hair contains all sorts of trace elements.

Sow pole beans in a trench lined with newspaper especially if the area is likely to dry out –pole beans love moisture and the newspaper will hold moisture, until it decomposes. Fill the trench with well rotted manure and compost – pole beans need good food to thrive.

If you have problems with slugs and potatoes use naphtha (mothballs) crumbled around the tubers – the potatoes will not be touched and will not smell of mothballs! (I'm trying this one this year for the first time in the hope that the Colorado potato beetles will stay away too!)

When you water seeds into the ground never use cold water- it shocks them into thinking it is still winter- use lukewarm water. This also applies to any watering at any time. Sun-warmed water is good for all plants. Transplanting – water well after transplanting in the evening or on a cloudy day , adding 1 Tablespoon sugar to every gallon of water- the sugar is carbon which will help the roots settle, and stop wilting.

If you grow seeds on a windowsill- take them off the sill at night – the cold radiating from the window pane will not aid germination or growing . Also turn the plants every day so that they do not lean towards the sun. Plants on windowsills tend to get leggy – try diffuse light rather than direct sunlight

When transplanting all veg except cucumbers – add 1 Tablespoon of rolled oats to the bottom of the transplant hole – oats is a good fertilizer containing many trace elements.

Banana skins for roses – bananas contain magnesium, calcium, sulphur, phosphate, silica and sodium . Chop up and bury near rose bushes . Very good for increasing blooms.

Parsley planted near roses will increase the fragrance of the roses, as will used tea bags spread round their roots.

Caring tips

Lettuces- to stop them bolting – when they are mature and look as though they might flower and go to seed – dig them up , leave them in shade for an hour and then replant and water well. It will stop bolting.

Grow pole beans up corn or sunflowers. Use liquid manure every 2-3 weeks on pole beans, they will flourish! The beans help the corn and sunflowers as well by helping fix nitrogen in the soil .

Grow wonderful cabbages and other brassicas- if you are prepared to waste a little beer! 1 beer to ½ gallon water and water around the plants. Ale is good for tall growing flowers- hollyhocks, sunflowers etc. Use it without dilution –once a week if you can afford it!

Pests

Slugs: 1Tbsp sugar, 2 tsp dry yeast, 1 litre warm water

Mix and allow to froth, place in 500ml yoghurt containers near slug paths and collect the drowned slugs next day . At least they died happy- thinking they were drinking beer! Plants to grow to stop slugs – Common sage (herb) , scarlet sage (flower) and thyme and hyssop.

Bird scarers

Anything red ;Black twine through fruit trees ;CD's and Dvd's strung up where they will turn in the wind; Glass wind chimes

Ants

Plants that ants do not like: Lavender, Calendula, African marigold, Tansy, Pennyroyal ,Chives

Yeast and sugar mixed with a little water – lethal to ants. Cayenne pepper – spread around plants you want to save from ants

BUT Ants are aphid predators – so do not get rid of all of them...

Aphids

Rhubarb leaf soap: 2 lbs rhubarb leaves in 2 pints water – boil for ½ hour. Add 2 oz liquid soap. Mix well and spray plants as a deterrent and to rid them of aphids. Wash pot out thoroughly – rhubarb leaves are toxic to humans. Garlic amongst rose bushes will chase off rose aphids.

Caterpillars

Lawn clippings - spread around cabbage family plants will stop cabbage loopers. Sour milk and lemon juice or apple cider vinegar on cabbages will stop any caterpillar. Plants that stop caterpillars - Artemisia – wormwood family.

Earwigs : make traps of upside down plant pots filled with wood shavings – they crawl into them at night. Lift the pots during the day and tip the earwigs out into a bag and get rid of them. However earwigs are predators on bad bugs so do not get rid of them all.

Flies - grow tomatoes inside the house , and southernwood outside, or the African or French marigolds.

House and clothes moths do not like lavender

Hang a tomato plant overwinter in an apple tree to stop blight.

Weeds in pathways – boiling hot salted water will kill them. 1 cup salt to 1 gallon water – however it may kill plants along the side of the path so beware. Horticultural vinegar - 9% vinegar (instead of 5 % food grade) works the same – gets into the roots – again beware of killing plants along the edges.

Weeds – one year’s seeding makes seven years’ weeding ...only too true.

Dandelions are good (until they set seed!) Flowers are good for bees and other pollinating insects. They bring trace elements up from low down in the soil. Dig out before they seed and put them on the compost heap to rot.

Till the ground 10 days before planting, then rake out sprouted weeds just before planting

Cultivate again 10 days after planting.

Third weeding – 10 days later.

Thereafter as/ when necessary as most of the plants will have grown strongly enough to not be bothered by the weeds.

Direct vegetable seeding into the ground

First seeding – before last frost, but once ground can be worked (i.e. not too wet)

Dill, leaf lettuce, onion sets, peas, radishes, turnips –most will start growing at 4C -7C. Soil should not be wet and lumpy.

Second early seeding- just before frost ends : cabbage, carrots , fennel – need 10C heat to germinate

Mid early season (about a week after frost ends) – hardy annual flowers, beans, later carrots, early corn, looks, sweet onions, salisfy, New Zealand spinach .

If it looks as if frost is going to return –cover all seeded beds with newspaper or horticultural fleece.

2 weeks after frost ends- if warm enough – beans, tender annuals, corn, cucumbers, summer lettuce, Beans will rot if too wet and cold.

Summer planting: (early summer) brussel sprouts, Chinese cabbage, Cauliflower, endive (chickory) , rutabaga

Mid to late summer: beets, dill for pickles, leaf lettuce, radishes, spinach.

Watering :

As infrequently as possible;Water thoroughly – 2-4 gallons water per square yard. Get water to the roots not on leaves;

Increase humus for water retention.

Use water in which weeping willow sprigs have been soaked to root slips from other plants – the willow releases a hormone which promotes rooting of slips (Organic gardening Sept 1981)

Random tip from Alison 😊

To peel a tomato *without* immersing it in hot water first – rub the back of a knife over a fully ripe tomato and then peel it. Only works with ripe tomatoes.