

Vegetable Gardening – How to Get Started!

The following is a brief overview of the information you need to get started on your vegetable plot. It is only an opinion – if what you are doing is working – keep doing it!

Materials

- Basic tools – Garden fork, shovel, trowel, metal rake, hoe, pruners, gloves
- Watering cans – two will make life easier!
- Compost
- Seeds/Plants!

Compost

- Make your own!
- Or buy
 - Buying in bulk is cost effective with less waste
 - Split an order with a fellow gardener
 - Many local companies to choose from
 - Ask to see their soil testing results

Remember *Good compost should not smell

Seeds

Many vegetables can be started from seed:

peas	cucumbers	pumpkins	potatoes (slips)
lettuce	amaranth	rutabagas	
kale	beets	squash	
corn	bok choy	spinach	
beans	carrots	Swiss chard	

radishes spring onions turnips

Some need a few more weeks than our summers have...

tomatoes	broccoli	leeks	Brussels sprouts
artichokes	cabbage	cauliflower	
peppers	eggplant	celery	

And some are a different kettle of fish altogether...

Garlic (plant in the fall for larger bulbs)

Rhubarb (Start with crowns – harvest after 2-3 years)

Asparagus (Start with crowns – harvest after 4-5 years, female plants produce larger spears but males produce more spears and tend to live longer)

Where to buy:

Any garden centre

Online (to name a few):

- stokes (stokeseeds.com)
- westcoastseeds.com
- oscseeds.com
- damseeds.ca (William Dam)
- heritageharvestseeds.ca
- richters.com
(Herbs)
- rareseeds.com (Baker Creek - US)
- cottagewardener.com

GMO, Hybrid, Heirloom, Open Pollination???

Hybrid Seeds, according to West Coast Seeds, are “created by crossing two unique parents”. The F1 or first generation of offspring will all be the same (in terms of how they act and look) and be stronger than the parents. That is the advantage to using hybrid seeds. The gardener (or scientist) is breeding plants to have all the desired traits of both parents but none or few of the undesirable traits. An example of this is corn – the new hybrid varieties are easier to grow and are sweeter than the original parent plants. The disadvantage is that the offspring of the F1 generation will often either revert to the original type or have reduced fertility. Hybrid seeds are often more expensive because this cross breeding has to be done every year. The process can become quite complicated as scientists find the best combination of traits ie if F1 offspring are crossed with the parental types or F2 plants (the offspring of F1 plants) are crossed with F1 or parental types.

<http://www.macroevolution.net/hybrid-plants.html>

<https://www.westcoastseeds.com/garden-resources/articles-instructions/hybrid-seeds-exactly/>

Open Pollination is the natural way plants exchange genetic material. Wind, insects, bees, birds, human hands etc carry pollen from one plant to the next, or the plant can self-pollinate. Open pollination generally means greater genetic diversity in a species, which in turn is better for a species survival over the long term (think evolution). An advantage for gardeners is that they can save seeds (and therefore money) year after year and yet still get a true breed the following season. Disadvantages include –

1. A short growing season – the plant may not reach the flowering stage before winter sets in, some, like carrots, need two growing seasons to set seed.
2. Potentially less resistance to disease – seeds should not be saved from crops that failed due to disease.
3. Some open pollinated varieties are not as 'tasty' as their hybrid counterparts.
4. Close varieties that you don't want crossed may breed - Queen's Anne Lace will cross with carrots if left to their own devices.

<http://open-pollinated-seeds.org.uk/open-pollinated-seeds-2/>

<https://www.growveg.com/guides/which-are-better-hybrid-or-open-pollinated-seeds/>

Genetically Modified seed/plants:

The World Health Organization defines genetically modified foods as “foods derived from organisms whose genetic material (DNA) has been modified in a way that does not occur naturally eg through the introduction of a gene from a different organism”

It would be highly unlikely you could purchase genetically modified seeds at your local nursery. GMO seeds are patented products and therefore require contracts to be signed before planting. That being said, if you are adamantly opposed to GMOs make sure the company you are buying seeds from does not also sell GMO seeds through another branch of its company.

http://www.who.int/topics/food_genetically_modified/en/

<http://sitn.hms.harvard.edu/flash/2013/genetically-modified-organisms/>

<https://www.nature.com/scitable/topicpage/genetically-modified-organisms-gmos-transgenic-crops-and-732>

Planning the Plot

Succession Planting

Crop Rotation

Think of your vegetables as being in families!

Vegetable Families

Nightshade	Gourd	Pea	Beet
Tomatoes Eggplant Peppers Potatoes Ground Cherry	Watermelon Cucumber Pumpkin Squash	Beans Peas Soybeans	Beets Quinoa Spinach Swiss Chard
Carrot	Mustard	Sunflower	Onion
Carrot Celery Parsnip Celeriac Cilantro Dill Fennel Parsley	Arugula Bok Choy Broccoli Brussels Sprouts Cauliflower Cabbage Kale Kohlrabi Mustard Greens Radishes Turnips	Lettuce Some herbs	Chives Garlic Leeks Onions Shallots

Crop Rotation:

Rotate crops on a 3-4 year cycle. Try not to plant tomatoes and potatoes on the same patch of soil within three years. Try to plant legumes (which enrich the soil by fixing nitrogen) after heavy feeders (ie. The nightshade family).

The Plan has been made...Now what?!

- Level the planting area
- Form rows (leafy greens, carrots etc) or mounds (corn, squash etc)
- Sow seeds - generally, the bigger the seed the deeper it can be planted. Carrot seeds for example are surface sown (press lightly into moist soil)
- Some seeds can be sown as soon as the soil can be worked, some need to wait for warmer **soil** temperatures
- Keep the soil moist until germination has occurred
- Once the seedlings are about 3-5 cm tall they should be thinned *very important
- If all else fails - read the seed packet!

Q&A

Question: When to till - before or after adding compost?

If you were going to mix the compost in anyway add the compost before you till to save your back! Otherwise, add the compost after tilling. It can act as a barrier to the weed seeds that may have been brought to the surface because of the tilling process and depending on how deep the soil is tilled the compost (and therefore the nutrients) may be moved to a depth lower than that of the roots of the plants.

See further reading for more information on tilling

Question: NPK? Nitrogen - Phosphorus- Potassium

3 main macronutrients are nitrogen, phosphorus, and potassium

Nitrogen- enhances vegetative growth (leaves and shoots). Too much and reproductive growth (fruit production) is inhibited. Too little and the leaves will turn a pale green colour.

Phosphorus - is needed for early root growth and development of seedlings. It is needed for flower and fruit formation. Too little and the leaves will turn a purple colour.

Potassium - helps plant vigour and disease resistance. Good for root crops. Too little and the leaf margin will appear scorched or there will be grey or tan areas on the leaf. If you use synthetic fertilizer - the numbers on the container will read N-P-K ie 2-2-4 means 2%N, 2%P, 4%K (% by weight, the rest is filler). **Always buy a slow release fertilizer and make sure the nitrogen is insoluble.** This will prevent nitrogen from leaching into the water supply (an environmental hazard).

Question: Carrots are poorly developed

Make sure they are properly spaced, the soil is loosened before planting, and the seeds are sown while the temperatures are still cool. Try a shorter variety for clay soils. Too much nitrogen can also cause shorter roots.

Question: Voles - how to get rid of Voles – how to get rid of them?

1. Turn over the soil - this will destroy their underground system. 2. Get rid of leaf litter, long grass, mulch etc. to open the space up. This is where voles hide from predators. 3. Use a barrier, bury it 6 inches deep. 4. Plant *Fritillaria imperialis*, *Hellebores* spp., ornamental onions, and daffodils - voles dislike these plants. 5. Encourage (or at least don't discourage) owls and coyotes to the area (natural predators). 6. Set mouse traps - let your garden neighbour know!

Question: Cool weather crops vs Warm weather crops

Cool weather crops or frost hardy crops can withstand a few degrees of frost and most require cool growing conditions.

A few examples: Asparagus, rhubarb, peas, kale, spinach, turnip, parsnip etc

Warm weather crops (frost tender vegetables) cannot be planted until the soil warms up. If planted too early seeds may not germinate, or they may be more susceptible to disease. Seedling growth may be stunted. Examples include corn, cucumbers, green beans, eggplant, tomatoes, watermelons, peppers, oka.

Further Reading:

How to Save Your Back:

The Benefits of a No-Till Garden

By Helen Stephenson

When starting a new garden, home gardeners have been known to rev up the rototiller and hack away mercilessly at the ground in an effort to break up compacted soil, eliminate weeds and sod and improve aeration. New research is suggesting this may not be the best choice to prepare a new bed; in fact, it may be the worst thing we can do to our soils.

Tilling, it has been argued, aerates and loosens the soil allowing the roots of plants to spread and grow. Tilling is also thought to mix in any compost that has been added, giving roots immediate access to nutrients and oxygen. The reality is tilling destroys the natural soil structure in many ways. For example, the use of heavy foot and machine traffic from the tiller causes soil compaction. Compost mixed in by the tiller or shovel can end up below the root level of plants rendering it useless. More importantly, tilling breaks apart the soil into smaller pieces increasing the overall surface area of the soil particles, which in turn leads to decreased water retention in the soil. The dry, tilled soil is far more likely to suffer from erosion due to wind or rain than non-tilled soil.

Although tilling allows for the immediate planting of seeds, the physical process of turning over the soil can cause dormant weeds to be exposed to the sun and germinate.

Most of the damage caused by tillage is the destruction of the soil's macro and microfauna. Soil bacteria and other microbes, most of which live within the first few centimeters of the soil surface, have adapted to very specific niches and are very sensitive to the effects of tilling. Entire microbial populations can be wiped out by being moved a few centimeters up or down in the soil horizon. Tilling can throw predator-prey population numbers out of whack, allowing crop pests to gain a foothold in an otherwise controlled environment. Above all, the loss of earthworms can have a devastating effect on healthy soils. Worm tunnels aerate the soil, allowing water filtration, drainage and root penetration. They ingest decaying matter and returning it to the soil as nutrient rich castings high in nitrogen, phosphorus and potassium. Without worms, soil has decreased aeration, poor water retention, and decreased infiltration, all of which leads to surface sealing and run off during rainstorms. Run off also means mineral leaching, which is compounded by the fact there is less available minerals to begin with due to reduced worm populations.

So, what can be done for a yard with clay or compacted soil? The best practice includes laying down newspaper, to kill the grass and weeds, then adding several centimeters of compost, topping with good quality weed free soil and a layer of mulch. Save your back and let the worms and other microbes do the tilling for you, the natural way.

Further Readings

Care and Cultivation of Permanent Garden Beds. By: Barbara Pleasant, Mother Earth News, Feb/Mar 2012, Issue 250. <http://www.motherearthnews.com/>

Gardeners can learn a lot from farmers: Urban Growth. By Mark Cullen. Toronto Star, June 3, 2017, Life Homes Section. <https://www.thestar.com/>

Tilling vs. Not Tilling Gardens by Olivia Silva, HomeGuides SFGate. Accessed June 1, 2017. <http://www.sfgate.com/>

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