

**Workshop Title: Organic Vegetable Growing From the Ground Up**

**Speaker(s) & their titles:** Alyson Chisholm, Windy Hill Farm (NB)

Alyson worked on farms growing up and now owns a farm in McKees Mills, north of Moncton. Her and her partner run a 100-member CSA, sell at the Dieppe Farmers' Market, and she teaches an organic gardening course every spring.

**Executive Summary**

Alyson Chisolm gives a speedy overview of the many important factors to consider when growing organic vegetables. Topics covered range from choosing a proper site for your garden, to specifics on pest and disease control. Alison does a great job of packing all of this critical information into one short hour.

**Detailed Notes**

- Is organic not doing anything? No, organic by intent.
  - Intentions – making use of what you have close to home, reducing impact on the environment, making healthy food.
- Permaculture
  - Works well on smaller scale like in backyard gardening.
  - As a gardener, you don't want to be a slave to your garden. If you use permaculture, it is more self-sustaining.
    - Instead of using artificial shades to protect plants which can't tolerate as much sun just grow near taller plants
  - Diversity – the more diverse our food production, the more able we are to withstand challenges. More resilience.
- Appropriate scale and technology – Garden sensibly and don't break the bank.
- Zones – design garden with deliberate zones. Central is home, where you grow things that require more attention. As you get further away from home, put crops that require less attention. Efficiency must be kept in mind.
- Location –
  - Considerations :
    - Sunlight – should have minimum of 6 hours a day. Plant areas based on how much sun they like.
    - Drainage – Soil must be well drained, water must be able to move through freely. There must also be air drainage. Avoid frost pockets, these happen in low areas (puddles of air).
    - Wind – can be damaging, but can be good. Movement of air can help to prevent disease in plants, but too much wind can damage them.

- Distance from house – closer to house, the more likely you are to see issues and improve things.
  - Access to water – sometimes water must be added
  - Pets – Can be destructive to gardens
  - Car exhaust – if near road, consider putting up hedgerows. Root crops take in most pollutants, then leaf crops, then fruit crops. Plant crops that take in least pollutants closest to road.
- Encourage beneficials – create an ecosystem that will help your garden.
  - Insects such as ground beetles, ladybugs, and parasitic wasps eat bad bugs; bees are pollinators.
  - Snakes, toads, frogs eat slugs
  - Birds – swallows and killdeer eat insects
  - How do you encourage them?
    - Plant flowers (dill and fennel are good)
    - Sunflowers
    - Ponds/bodies of water
- Planting options for a new gardener :
  - Plant this year – remove sod – very difficult
  - Plant this year – till – must remove perennial weeds
  - Plant this year – requires lots of mulch and topsoil – this is expensive!
  - Plant next year – cover crop will build up the soil
  - Plant next year – plastic mulch prepares land by killing weeds
  - Plant next year – add organic mulch to build soil
  - You can do a mixture of both by making a smaller garden the first year and get prepared for a larger setup for the next year.
    - Planting next year provides benefits because you can do more to prepare and saves you much of the work.
- Building Soil
  - This is what the whole organic system is based on. Soil feeds plants instead of fertilisers.
  - Healthy soil is living soil : the fungi and bacteria break down matter into nutrients.
  - Soil structure has to be good ; must be able to hold moisture, but should also drain well.
  - To enhance soil structure, must add organic matter.
  - How ?
    - Use compost (thermal or worm)
    - Add mulch (leaves, straw)
    - Sheet composting
      - A layered mulch system that reduces weeds, and reduces labor by mimicking layered soils in forests.
    - Green manure
    - Proper tillage (no compaction)
      - Try to avoid using heavy machinery when possible.

- Do not till soil when it is wet.
- Compost Ingredients
  - Nitrogen and Carbon
    - High Nitrogen – Food scraps, mostly fresh green and leafy, lawn clippings. Decay rapidly.
    - High Carbon – Straw hay, leaves, woodier. Breakdown more slowly.
    - You want 2 :1 brown to green.
  - Three bin system
    - Fill first bin with good ratio of 2 :1
    - Let first compost develop while you fill second bin, and so on.
- Soil pH – aiming for pH between 6 and 6.5
  - Many soils in this area are acidic so we must add lime (oyster shells, gypsum)
  - If pH is too low, plants cannot access nutrients.
  - If pH is high, add peat moss.

Question: How often do you need to add lime ?

- When using slower release sources, it could take a year to alter pH. Keep testing year to year to see if you must add more.

Question: Is there a specific type of green manure which goes with specific types of weeds you have ?

- Some weeds indicate the health of soil. If it is acidic or poorly drained. Generally a good one for weed control is buckwheat.

Question: What are some of the edible legumes? How do you get rid of clover?

- Beans/peas, no magic trick to get rid of clover, must weed it out slowly (out-muscle it!)

Question: Add limestone in spring or fall ?

- Spring because in fall it can be washed away.

- Green Manures
  - Crops grown to protect and build the soil.
  - Inexpensive seed that grows quickly.
  - Weed control, pest/disease management
  - Erosion control.
  - Beneficial insect attraction
  - Increases fertility (Legumes – Take nitrogen from air and fixes in soil).
  - Catch crop – hold nutrients that could have been washed away in soil.
  - Beauty !
  - Types
    - Buckwheat, fall rye, clovers, oats, peas, tillage radish, marigolds.

- Vegetable Crops
  - Easiest to grow
    - Swiss chard easier than spinach (which tends to bolt in hot weather); produces throughout the season
    - Carrots
    - Herbs easy to grow from transplants
    - Tomatoes easier to start from plants
    - Jerusalem artichoke – easy to grow, doubles as a wind break
    - Garlic (plant between middle and end of October)
- Warm and Cool Season Vegetables
  - Warm don't like frost
    - Tomatoes, Peppers, Cucumbers.
  - Cool can be planted before danger of frost has passed. (middle of June is last frost date.)
    - Broccoli, Spinach, Kale.
- Phenology
  - Links bio phenomenon with climatic conditions. i.e. how plants react to changes in climate.
  - e.g. Crocuses bloom about 4-6 weeks before the last frost (mid-late March to early April). You can plant your earliest cool season crops outdoors under cover: spinach, radish, raab, Chinese cabbage, broad (fava) beans, kale.
- Plant Varieties and Buying Seeds: How to select seeds
  - Consider days to maturity (go for short time to maturity here)
  - Growth habit (what does your system allow?)
    - For instance, indeterminate plants will grow taller than determinate plants, and therefore must have more vertical space to grow.
  - For more considerations, refer to slide 27
- Crop rotations
  - Change up where different plant families are planted. Manage soil fertility, diseases, pests.
  - List of plant families is provided on slide 30
- Pests and Diseases
  - Prevention better than cure
  - Monitor
  - Learn about pests (know your enemy)
  - Accept some damage! If you kill all pests, predatory insects will die out. Maintain balance

- Control Methods
  - Row covers – good for carrot fly. Thin reusable material available from Dubois Agrinovation and other agricultural suppliers.
  - Thick mulch
  - Hand picking
  - Bug suckers
  - Flamers
  - Traps
  - Soaps
- Potato bugs
  - Pick off and kill adults
  - Turn leaves, take off eggs. Nip them in the bud.
- Cucumber beetle
  - Use row cover to keep out as plants develop
  - Hand pick when plants outgrow row cover.
  - Pick in morning when they are sluggish.
  - Can use modified vacuum cleaner.
- Brassica Caterpillar
  - Use row cover. Hoop cover so the bugs can't lay through cover.
  - Use Bt (a natural insecticide)
- Carrot Maggot
  - Row cover or ash added to soil. Coffee grounds, onions confuse sense of smell and prevents maggot from finding carrots.
- Blossom end rot (tomatoes)
  - Metabolic disease – calcium deficiency, can be caused by inconsistent watering.
- Weeds:
  - Important to regard weeds as plants growing in the wrong place; they are wild plants growing in crops.
  - Get them when they're small. Prevent them from going to seed.
  - Transplant where possible so crops have a jump on weeds.
  - Let weeds grow for one week on bare soil, then scrape them off and transplant vegetables.
  - Hoeing
  - Perennial weeds should be removed completely : if you cut roots it will proliferate.
  - Mulch (plastic and organic – i.e. straw)
  - Wheel hoe