

A Introduction to Low Maintenance Low Input Organic Gardening

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Introductions and goals.

What plants need to grow:

- Sun: Fruits and veggies typically need full sun, but some can be grown in part shade, especially for leaf crops. Different ornamental and habitat plants require different amounts of sun. Arrange plantings with consideration of where tall plants will cast shade.
- Healthy Soil: Both the living and non-living aspects of the soil are very important to the plants that grow in them. Take care to minimize damage to the soil by not walking on beds, not digging/cultivating unnecessarily and avoiding leaving bare soil.
- Water: We are lucky here in Maine to often have ample rains, but the ability to irrigate easily and effectively can be essential if it doesn't happen to rain when needed.

Basic Soil Biology

It is a common misconception that plants get their nutrition by simply absorbing it from the soil, while this is certainly somewhat true in industrial and hydroponic systems, in natural and organic systems there are very few nutrients just floating around in the soil in soluble form, everything get “eaten” and held by some living thing very quickly. So how do plants access essential nutrients in nature? They do this by “trading” with the complex community of microorganisms in the soil, plants use their most specialized skill, photosynthesis, to create sugar, the majority of this sugar is often exuded into the soil to feed microorganisms, in exchange the plant gets mineral nutrients and increased access to water. For more details on these interactions try Teaming with Microbes by Jeff Lowenfels or search YouTube for Elaine Ingham.

Choosing a Site (if applicable to group)

- How long will you be working on this site? Do you rent/ own / borrow?
- What is the sun exposure?
- What is the wind exposure? How about air drainage?
- How is water moving through this site? Is the soil draining well?
- What is the soil like?
- Are there compaction issues?
- Is lead contamination a issue? (especially common on the peninsula in Portland)
- Is the space convenient and pleasant to visit daily?
- Is the space easily accessible for bringing materials in and harvests out?

What to grow?

If gardening more for food.

- What do you already like to eat?
- What would you like to try, but can't find locally?
- How much time do you have? You can harvest greens or radishes in 30 days, but it can take years or even decades for some tree crops to start bearing.
- What do you want to have stored for winter?
- What is easy to grow on your site?

If gardening more for aesthetics/habitat

- What will grow easily?
- What would be good to add to local ecology? / What is missing from the local ecology?
- What will be provide beauty throughout the season?
- What really catches your eye?

Initial amendments and sheet mulching. (if applicable to group)

- A new food garden bed usually needs some preparation to be ready for planting, this is also a ideal time to add soil amendments as needed. If you don't know what is lacking or nothing is particularly lacking compost is always helpful. Gardens featuring native plants for habitat and aesthetics typically don't need much amendments.

My preferred method for starting a new bed is sheet mulching which involves laying a layer cardboard or newspaper over existing vegetation, this smothers it out and creates a blank slate to put in new plants. Compost and other amendments are usually placed under the sheet layer and hay, leaves, wood chips or other mulch layers are usually placed on top.

- Soil tests can be useful to ascertain what is chemically happening in the soil and are inexpensive through UMaine. They only tell ½ of the story though as they don't usually tell you anything about the biology present in the soil.
- If soil is compacted this should be addressed before anything else, a broad fork is a great tool, but a shovel or garden fork can be effective as well. A cover crop of forage radishes, daikons or parsnips can also break up compaction.

Planting from seed and start. There are 4 common ways to to put plants into your garden, they all have advantages and disadvantages and each has its own set of skills.

Direct seeding, this is generally the cheapest / simplest way to put a plant into your garden, it is a great way to do most annual veggies, especially things that you plants a large number of and/or have a short season.

Examples of this would be lettuce, beets, carrots, peas, kale. Important factors in a successful direct seeding are: A nice seedbed, this means having soil mostly free of large pieces of debris, without weeds and without compaction. For a row of plants these conditions only really need to exist for a strip about a inch wide.

Consistent moisture, your seedbed should never dry out between planting the seeds and the seedlings emerging from the soil, also try to avoid flooding. If it does dry out, just water it and don't worry to much, but try to avoid it. I like to plant shortly before a rain if possible, but you can also just water once the seeds are in.

Proper temperature, seeds will not germinate or will germinate very slowly if the soil temperature is too hot or cold for that species, see the fedco catalog for details by species.

Proper seed depth / soil contact, seeds should either be buried or sown on the surface and then the soil should be gently pressed over them to ensure they are fully in contact with the soil so they can absorb water well.

Proper season, this basically boils down to is there enough time before the frost for the crop to grow to maturity and be harvested?

Transplants (aka seedlings or starts), seeds can be started away from the garden in containers and then brought out when the time is right, this is especially important for long season crops which should be started indoors before they could survive the outdoor temps. Examples of things usually grown as transplants are: Tomatoes, Peppers, Broccoli, Onions, Leeks. You can grow your own transplants or purchase them from a local supplier. If purchasing transplants I recommend Winslow Farm (on rt 100, just over the Portland line in Falmouth), but the farmer's market and Risbara's (26 Randolph Street, Portland) are good as well.

Divisions / cuttings / vegetative propagation, Rather then growing from seeds, the sexual reproductive structures of most plants, you can clone plants by taking pieces of existing plants and planting those. This is most common with perennials, but is sometimes used for annuals. Potatoes and Garlic are examples of vegetables not typically grown from seed. For more information try Secrets of Plant Propagation by Lewis Hill.

Nursery Stock, Nursery stock are basically the same as transplants, except they are often clonally propagated and are grown to a much larger size before being sold. Ornamental plants are typically purchased in this form. They can come potted, bare-root or balled in burlap.

Mulch: the key to doing less work. In my experience, the most important garden practice is keeping a decent layer of organic mulch on the soil at all times. Mulch is a layer on top of the soil, typically made up of undecomposed plant material. Mulch offers many benefits:

- It holds in soil moisture, minimizing the need for irrigation.
- It moderates soil temperature, although it can also slow soil warming in the spring.
- It protects soil biology from UV light
- It protects against soil compaction.
- Minimizes weed growth
- It feeds soil biology and in doing so adds nutrients and carbon to the soil

There are many materials readily available that make great mulch.

- Tree leaves, obviously these are easily available for free... the problem is that only lasts for a month or 2 in the fall, so if you want leaves for your garden, be sure to collect them then. Conventional wisdom says that leaves will over time tie up the nitrogen in your soil or turn your soil very acid, I have not seen this happen and have never heard a first hand account of it happening. One problem with leaves is they tend to blow away, this is easily solved by spreading them on day that isn't too windy and immediately covering with a super light layer of something to hold them down, over time they will wet down and get held together by mycelium and that problem disappears. I like seaweed at the top layer if I can get it, if not wood chips or stone dust are both good options. I have many garden beds that I don't add anything too most years except tree leaves and a sprinkle of wood chips. Shredding the leaves with a lawn mower or garden shredder is another option to prevent them from blowing away.
- Seaweed, seaweed is a great mulch, it is both full of a huge number of nutrients and fairly slow to decompose. The only problem is getting it, I would avoid taking live seaweed off rocks, but the dead stuff at the wrack line (the line of debris that marks high tide on the beach) is fair game almost everywhere. Just rake it up and bring it home., Falmouth town landing, east end beach and kettle cove are all easy places to collect. Take as much time as you care to picking plastic trash out of it, but don't bother washing off the salt.
- Hay, If you are going to buy something hay is probably the way to go, you can often get hay for \$2-\$3 a bale (look on craigslist or go to Wilshore farm in Falmouth ([207 797-4287](tel:2077974287))). Hay is a pretty nutrient dense mulch, which is good, but means it decomposes pretty quickly. Hay is also full of weed seeds, so it needs to be put on pretty thick (4-6" thick if dry and fluffy), if it goes on thick the weed seeds wont really be able to grow, if you put it on thin you will probably end up with lots of weeds growing out of it.
- Wood chips, often available for free from arborists (try <https://www.chipdrop.in>), wood chips from small diameter wood are a great mulch for anything, but run of the mill wood chips are maybe a bit carbon heavy for annuals, they make excellent mulch for perennials and woody plants though. Wood chips are also great for paths.
- Straw, straw is a fine mulch, very similar to hay, but less nutrient dense and much more expensive, but even at \$10 a bale it's not too bad for a small garden. I prefer hay.
- "Bark" mulch is often just wood chips that have been died black (or orange), the dies are generally not too bad, but better to stick with plain old wood chips in my opinion.

Compost

Composting is a great way to turn organic wastes into a very useful soil amendment. I often try to leave as much in place as possible and just let crop wastes compost in place, but some are too bulky or otherwise not well suited to this and kitchen waste is better composted in a pile / bin rather than in place (although there are good ways of composting it in place as well). On a home scale it is very helpful to have some sort of bin / container to keep your compost in shape, I generally prefer bins made of pallets to commercially available ones, but both are fine options, a circle of hardware cloth (1/2" metal mesh) is also a good option. A compost pile is a living system in which bacteria, fungi and other microorganisms break down the material in the pile, keep in mind that the organisms in the pile are just as important (if not more) than the chemical aspects of the pile. To keep this system happy you need to maintain 3 things: Air, Water and Carbon to Nitrogen ratio.

- Air is maintained by adding rough textured materials like straw, dry weeds, twigs, dry leaves and by turning

the pile. You can also layer in plastic pipes with holes drilled in the side walls and the ends extending beyond the edge of the pile.

- Water is often not a problem in this climate, too much water on the pile will fill up the air spaces essentially drowning the biology, so keeping a layer of rough material on top to shed water is a good idea, or if not that keeping it in a covered bin serves the same purpose. Too much rough material in the pile can lead to so much air space that the pile dries out.
- Carbon to Nitrogen is the most difficult to understand because it is much harder to directly observe compared to air and water. But to simplify it as much as possible you want a mix of nitrogen containing material (food scraps, green plant material, manure, urine) and carbon heavy material (dry plant material, fall leaves, small woody material)

Human, Cat and Dog wastes can be safely composted but require special practices and attention, if you are interested in composting those check out the Humanure Handbook by Joseph Jenkins. Urine can be safely added to compost pile without special care.

Watering, While you can often get away with little or no watering if you have a nice heavy mulch and cooperative weather, but when you need it, it's best to be prepared. Watering deeply and less frequently is generally the way to go, although there are exceptions (like a seedbed before the seedlings are up). Here are some ideas for watering systems:

- Watering can, the cheapest and simplest option, perfect for a small garden, perhaps too time consuming for larger gardens
- Hose with hand sprayer, the option that I use, I like a sprayer that can be turned off at the end of the hose and can put out a lot of water with damaging small plants, so I use a rose comb with a ball valve.
- Sprinklers, saves on your time, but uses more water than doing it by hand. Has the option to be put on a timer or have an integrated timer.
- Drip irrigation, puts the water right where it is needed, best in conjunction with a timer. Starter kits available at a reasonable price at organic growers supply.
- All watering should be done on an as needed basis, if you get a soaking rain then don't water.
- Deep, but infrequent watering are much better than watering a little every day (except when germinating seeds). You want to moisten the soil to the full depth of the roots of your plants every time you water, but you should only need to do this 1-2 times a week (with a heavy mulch). Established perennials often don't need watering at all in Maine, but if they do, it is often even less, once every 2-4 weeks in drought conditions.

Harvest, processing and storage,

- Every crop has an ideal time (or times) to harvest, but often even if you miss this time there is still something good to do with the produce, for example zucchini that get too big for most dishes still make excellent zucchini bread or "noodles"
- Harvests that contain seeds (fruit) that are harvested immature tend to slow or stop production if any seeds ripen, so frequent harvests in peak season will keep them producing better / longer. This especially true for peas and beans, but applies to cucumbers, summer squash and some others as well.
- Many leaf crops can be harvested as a "cut and come again" crop, meaning you can cut some or all of the leaves and the plant will regrow and you can then harvest again, this can often be repeated a few times, or even hundreds of times in the case of perennial vegetables. You should always leave a few leaves and stems at the bottom of the plant for it to regrow from.
- Cold tolerant crops often sweeten after the frost, so don't worry too much about harvesting them all before it gets cold. Examples are Kale, Carrots, Parsnips etc. Sugar is nature's antifreeze.
- Many warm season crops will be damaged or destroyed by even a light frost, so either harvest or protect them when frosts are predicted. If you don't have time to harvest or a crop seems like it just needs a little more time to finish ripening you can protect it from an overnight frost by covering it with row cover, tarps, sheets, blankets or any similar material. Examples would be Basil (often damaged at any temperature below 40°F), Tomatoes, Squash, Sweet Potatoes, and Peppers.

If you have more of something than you can reasonably eat before it spoils here are some common strategies to deal with your garden excess:

- Give it away to a friend, family member, neighbor, soup kitchen or random stranger (this option is especially popular with zucchini)
- Freeze it, some things need to be blanched or otherwise prepared for freezing. Some things simply don't freeze well. Things often freeze best on a cookie sheet in the freezer and then once frozen can be packed in zip lock bags or other air tight containers. Vacuum packing frozen food greatly extends its storage life.
- Dry it, in our climate this is most successful with some sort of dehydrator, electric, solar, wood fired or combination. Some things you wouldn't think of drying are actually really good, like dried Kale which can be put into winter soups and other cooked dishes.
- Can it, high acid or high sugar foods can be canned in boiling water, low acid / sugar foods need to be canned in a pressure canner. Home canning is not that hard, but it is fairly time consuming and it is a good idea to follow the best practices to ensure good quality and safe storage.
- Ferment it, almost any vegetable can be fermented into a pickle form by simply putting it in a food safe container and covering it in brine (salt water), this often improves the nutritional content of the food and makes it store much longer. Not everyone has a developed taste for fermented foods, but the more you eat them the more they grow on (and in) you. Ferments tend to be much more stable than fresh veggies, but even the best ones store better in the fridge / root cellar than at room temperature. Check out Wild Fermentation by Sandor Katz for more details.
- Root cellar it, its amazing how well some foods store in a root cellar. Roots are the obvious place to start, but many fruits and other veggies store for months and months as well. The most surprising success for me was celery that lasted 3 months in the root cellar. Varieties selected especially for storage help a lot. A root cellar doesn't need to be fancy, it can be a partition of a basement or a barrel buried in the ground. For more info try Root cellaring by Mike and Nancy Bubel
- For specific info on home food preservation try The National Center for Home Food Preservation website www.nchfp.uga.edu/ or contact the cooperative extension to find out about their resources and programs.
- Want to try home food preservation but don't have the right equipment? Try asking friends to borrow it (it's amazing how many food dehydrators seem to be kicking around, unused) or join the Portland Tool Library (www.portlandmainetoollibrary.org)

Cover crops are plants that are grown to feed and protect the soil, rather than to feed or please humans. While they are growing they feed the soil with their exudates and when they die or are killed they form a mulch layer on the soil surface which slowly breaks down like any mulch layer.

- There are 3 types of cover crop
 - Winter killed, these crops are planted from spring to fall and allowed to grow until winter, the cold of winter kills the plants in the spring you have a weed free bed with a nice mulch layer to plant into. Some examples are: Oats, Peas, Forage radishes, Buckwheat.
 - Hardy, these cover crops will survive the winter, they should be killed when they have set seeds, but the seeds haven't fully ripened. They can be killed by mowing, trampling, crimping etc. Alternately, if you use tillage, you can till them under a few weeks before you wish to plant something new. Examples are: Winter Rye, Winter Wheat, Vetch.
 - Permanent, these perennials form a living permanent mulch can be planted through, this strategy has lots of positives and negatives and quite different from most familiar gardening methods. Examples are: White Clover and Bird's Foot Trefoil.
- Cover crops can often be under sown or inter planted with existing crops, meaning the cover crop seed is planted while the existing crop is still growing, when the existing crop is harvested or killed by frost the cover crop is already established.

Many cover crops offer fringe benefits, for instance you can eat the tender young shoots of field peas (they are actually quite delicious) and the unripe tops of oats make a wonderful addition to herbal teas. Many are also good bee forage or feed other beneficial insects (buckwheat is a good example).

Final questions and wrap up. Didn't get your question answered in class? Didn't think of your question until you were half way home? Feel free to email me and I will try to answer it. Edgewoodlandscapes@gmail.com

Sources for Materials, there are many great local sources for everything you might need for your garden.

Seeds:

- Fedco, My favorite source to buy seeds, a worker owned co-op, best prices, varieties selected especially for Maine and their catalog is a wonderful reference for growing vegetables. www.fedcoseeds.com
- Johnny's Selected Seeds, another great local company, but much larger and more expensive, also more geared towards the farmer than the gardener. www.johnnyseeds.com/

Seedlings:

- Winslow Farm, My first recommendation for seedlings. MOFGA certified organic, reasonable prices, great quality. Open wide hours. www.winslow-farm.com/
- Farmer's Market, lots of great options here, always changing availability. www.portlandmainefarmersmarket.org/

Compost:

- Wilshire Farm, Better quality compost and a better price than most places around. Delivery available for a fee. Also a good source for hay. 207) 797-4287 85 Hurricane Rd # R, Falmouth, ME
- Benson's, Another locally produced compost, available from several retail locations, www.bensonfarm.com

General:

- Paris Farmer's Union / Agway / Tractor Supply, these farm supply stores often carry better quality versions of supplies like fence posts, fencing, hand tools than big box stores, at similar prices.
- Allen, Sterling and Lothrop, Long time local seed packer and garden center. Good prices on high quality tools. (207) 781-4142 191 US-1, Falmouth, ME
- Skillins, Several locations, www.skillins.com/

Information:

- UMaine Cooperative Extension, A branch of the university system designed to help you! They offer workshops, training programs (master gardener / master food preserver), publications and one-on-one help. If you have a question related to gardening, animal agriculture or home food preservation that you just can't solve with Google you can call them and they will help you out. 207.781.6099 or 1.800.287.1471 (in Maine) www.extension.umaine.edu/