Horticulture Basics

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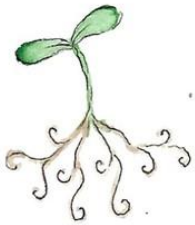
This quick guide is designed for teachers who are very new to horticulture and would like to understand the basics of how to grow plants at an allotment. This guide will cover the essentials that any teacher should know when working on a school allotment with young people.

Limiting Factors

These are the factors that limit plant growth. There are 4 key limiting factors:

1. Available nutrients in soil solution
2. Light
3. Water or soil solution
4. Temperature



Carbon dioxide is also a limiting factor, but this is irrelevant in most of horticulture. These are the crucial things that you need to think about if you want to grow plants well. So, what does this mean in a practical sense?

Soil Health

This is critical to having strong plant growth.

- It is worth putting time and effort into improving the soil.
- On light, sandy Norfolk soils, you need to work on field holding capacity.
- Ideally add well-rotted organic matter (e.g. compost or manure) to the soil every year in the winter. It is always good to add a variety of different sources.
- Gradually increase hummus levels.
- Try not to dig the soil where possible as it destroys the delicate structure - you will get more fungi and actinomycetes.

Light Levels

- Think about how the sun moves across the site through the day.
- Which areas do trees or buildings overshadow?
- Where should taller crops, such as runner beans or fruit trees, be planted?
- Think about which direction to angle rows of veg: north-south is best.

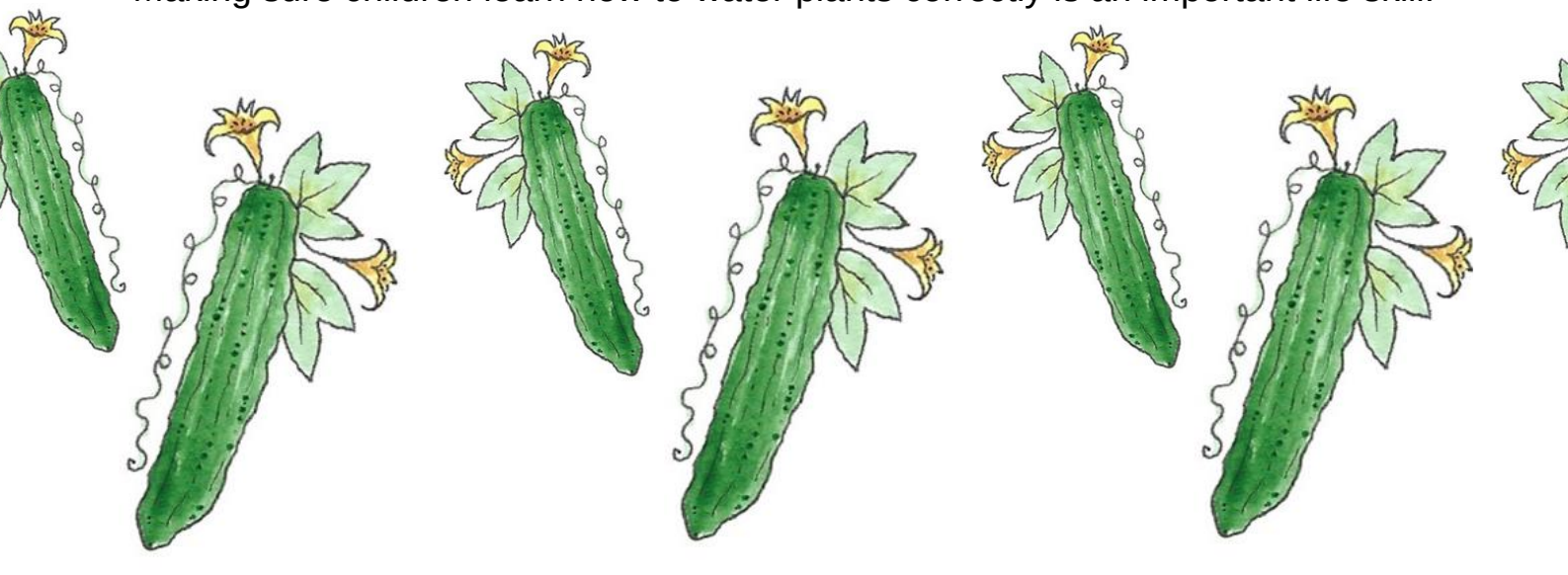
Planting / Sowing Times (Temperature)

- It is always good to have a plan of what should be planted/sown when, and to try to stick to it.
- A common mistake is to get carried away with good spring weather and to plant out tender plants too early e.g. squash, courgettes.
- I have found timing to be one of the most critical aspects to get right for general plant health and vigour.

Watering

- How often do plants need to be watered? This is something you need to establish at each different site and with each different plant.
- As a rule; less regular, heavier watering is better for plants because it promotes strong, downward root growth, as opposed to encouraging roots to grow close to the surface of the soil.
- Polytunnels will need watering very regularly in the summer and it may be worth considering seep hose or drip irrigation.
- Certain crops (e.g. tomatoes and aubergines) don't like having water sit on their leaves and should always be watered at the base where possible.

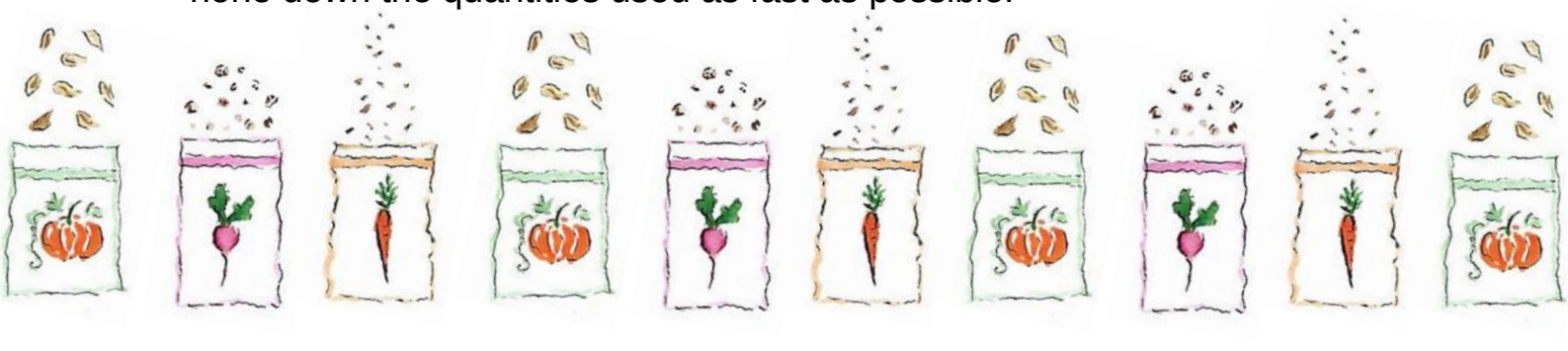
Making sure children learn how to water plants correctly is an important life skill.



Seed Sowing

It is important to get seed sowing right because seeds are becoming so expensive! What is important to consider when sowing seeds? What growing environment do they need? For instance, temperature, light, moisture. The seed packet should have this information. If in doubt, the Thompson and Morgan website and RHS website are good. Certain seeds will need to go in a propagator or a sunny windowsill at home. Avoid environments that will lead to etiolation (long, weak stems).

- **How deep should they be sown?**
  Depth varies depending on the size of the seed. However, some seeds must go deep in order to have strong stem growth. Again, seed packets will usually have this info.
- **What kind of compost / growing medium should be used?**
  The compost/medium used is critical. This must be: peat-free, have a good, light structure, not be too heavy, not be too high in nutrients. I use Melcourt sustainable composted bark seed sowing compost plus some perlite. The same logic applies to direct sowing.
- **Should seeds be sown directly or in modules?**
  The most important question when sowing seeds! Certain seeds must be sown direct (e.g. carrots, parsnips), whereas others need to be sown in modules in the UK (e.g. tomatoes). However, if you get the timings right, there is a lot of crossover. For example, all beans and peas work much better if they are direct sown at the correct time.
- **When should they be sown?**
  Seed packets will give a window for when the temperature and other conditions are right to sow seeds. Often, several successional sowings can be made throughout this period in order to have a constant supply rather than a glut. A big deal is made about successional sowing, but in my experience crops will ‘stand’ for quite a long time, generally giving a long enough harvest window.
- **What are the seeds made of and how old are they?**
  Storing your own seed is great! It must be from open-pollinated varieties/cultivars, not F1. Different seeds will store for different lengths of time, depending on how much fat they contain. Peas, beans and brassica seeds will last a long time, whereas carrots and beetroot will not.
- **How much should I sow?**
  Getting the quantity right is tricky and requires experience. You want to make the most of space, but not have so many plants that you don’t know what to do with them. When starting out, always sow slightly more than you need until you have an idea of how to limit wastage. Seeds are very expensive, so try to hone down the quantities used as fast as possible.



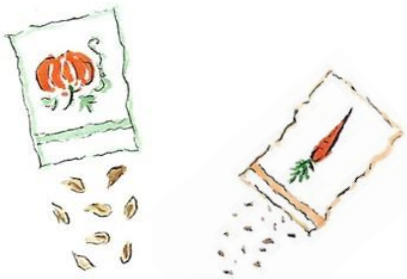
Sowing in Pots

Lettuce

- Fill the seed tray with compost, scrape off the excess and gently press flat.
- Water the tray prior to sowing.
- Thinly sow.
- Sprinkle some compost on top.
- Label.

Cabbage

- Sow in modules/pots.
- Fill and gently press compost.
- Make a dip in each module with your finger.
- Sow 2 seeds per module and thin to 1 seedling later.
- Water afterwards.



Direct Sowing

- Prepare a weed free bed with a rake to get a fine tilth.
- Set up a taught string line.
- Using a drawback hoe or a garden cane, create different drills for different seeds.
- Make sure to water the drill before sowing.