

Focus today will be on selected annual seeds
Presentation will cover essential supplies,
approaches and methods to start and keep
seedlings growing well until planting out.



These are the key points of the
MHS March 27, 2021 Demo:

Starting Selected Annual Seeds Indoors
By Sharon Smith

Outline

- Timing/when to start seeds
- Growing set up and scale
- Pots, containers and trays
- Warmth - temperature
- Lighting
- Soil Medium and watering
- Planting seeds
- Seedling needs and repotting
- Problem solving
- Tips for hardening off

Timing/When to plant seeds

- Annual seeds are started indoors at the time specified for each type, counting back the number of weeks from Victoria Day/last risk of frost
- Weeks ahead of planting out are usually given as a range so there is some flexibility
- Many kinds of seeds can be started indoors (e.g. perennials, houseplants, trees, etc) but you must research their particular requirements to see how you can replicate those conditions
- Reasons to start seeds early: 1. they need a longer growing season to produce fruit or flowers than we have; 2. Early start will mean earlier production of (cut flowers, ornamentals, fruits); 3. Much more cost effective than buying started plants; 4. May produce extra plants that could be offered at the Plant Sale
- Some seeds that can be started indoors may do equally well when direct sown in your garden for less effort so you choose
- So know what your particular seeds need to be started early and you will be off to a good start

Growing Set up and Scale

- You decide how many plants of what types you will start indoors. Then consider the size those plants will achieve before planting out which indicates the total necessary space needed
- A set of shelves with space for the plants and lighting is optimal for those planning to grow many plants
- Such shelves can accommodate both those plants needing warmth versus more moderate temperatures
- Place your shelves or set up in an area where you can regularly monitor germination and growth progress as well as water as needed
- Some might start seeds of only a few plants placed in a window but keep in mind the limitations of that set up including: works best for seeds needing cool germination and growth temperatures and those with less light requirements
- Smaller scale set ups and hydroponic units can work too

Pots, Containers and Trays

- You can use whatever plant pots are convenient to fit your space keeping in mind that many seedlings will need larger pots before planting out so having two sizes of pot works well
- Use plastic pots. A square shape allows more plants in the same area or use what you have on hand
- Know which plants resent root disturbance – Pressed peat pots can work for those if precautions are taken – more detail later in planting out
- For most seedlings peat pellets are not optimal as there is insufficient space for roots and they dry out too fast
- Put pots in a tray which will enable bottom watering and a clear cover that can help some seeds germinate by retaining heat
- Ideally trays are flat bottomed but even those with shallow holders for peat pellets will do the trick using pots – just remove the peat pellets

Warmth - temperature

- Knowing the germination and growth requirements of your seeds/plants determines the warmth or cool temperatures you need to provide
- Seeds needing warmth (e.g. 75-80°C) will benefit from a horticultural heating pad placed under the growing tray and with a clear top to hold in that heat with young seedlings
- Tomatoes, peppers, basil and some squash seeds should be treated as if they were tropical plants
- Seeds needing moderate temperature can be germinated at room temperature or on a windowsill (cool air at night)
- Incorrect temperature will affect 1) how many seeds germinate and how long it takes; and 2) the robustness of the seedlings
- Some seeds that germinate warm (Lobelia) are moved off the heating pad after they sprout so check the needed conditions

Lighting

- Seedlings need effective lighting to grow properly
- Some seeds need light to germinate so don't cover those
- Use fluorescent lighting as it does not generate excessive heat compared to incandescent bulbs and the light is spread over a larger area to support more plants. A light fixture can be tailored to your scale and set up
- If using fluorescent fixtures you don't need expensive “plant grow” lights; use a warm and a cool white bulb in a 2 bulb fixture to give the broad light wavelength similar to “grow” bulbs
- Put lights on a timer – set to 12 hours daylength. You are replicating conditions when the plants will go out into the garden
- Seedlings should be placed close to the light, about 3” and use risers that can be removed to adjust distance as the plants grow
- In a windowsill be sure to rotate the plants so they grow straight

Soil Medium and Watering

- For starting seeds only use sterile seed starting mixtures which are designed for this purpose
- Regular potting soils are too heavy for young roots to easily penetrate
- Peat pellets are not suitable substrate as the peat is too dense
- Seed starting mix or potting soil can be used for the second potting of the young plants when they go into larger pots
- It is generally best to water the pots from the bottom in the tray
- Try to use water that is ambient temperature to prevent shock to young plants
- Monitor carefully those pots above heating pads as they may dry faster
- Do not overwater to prevent damping off

Planting seeds

- Plant seeds at the right timing
- Know which seeds need to be covered with soil and how deep - about 3 times the seed thickness
- Know which seeds require light to germinate and press them into the top of the soil
- Once the pots are filled with seed starting medium thoroughly dampen it before putting in the seeds
- Use spritzer to dampen the final layer of potting medium
- Be sure to label each pot with the variety name, date of planting and number of seeds so you can also determine germination rate of your seeds and compare to expected germination days
- Plant some extra seeds to select for the strongest plants or to provide for the plant sale

Seedling needs and repotting

- Seedlings first show “seed leaves” which grow from nourishment stored in the seed. After that food is used up the “true leaves” grow and the plants can photosynthesize
- Remove clear covers after germination to prevent damping off
- Stroke the seedlings periodically or use a mild fan to toughen their stems
- Once your seedlings are well past their “seed leaves” stage you can monitor them to determine when to transplant to larger pots
- If seedlings have been transplanted into seed starting medium dilute fertilizer can be applied periodically to support robust growth and preparation for planting out in the garden
- Thin crowded seedlings or repot when growth is too dense
- Adjust distance from lights as the plants grow taller

Problem Solving

- **Poor Germination:** wrong germination temperature, poor light if needed for germination, seeds are too old or kept under poor conditions (proper seed storage needs dark, cool and dry – I use my refrigerator. Seed duration varies by seed type)
- **Damping Off** (fungus causes seedlings to rot off at the base of the stem and it is fatal): 1) use sterile potting medium, 2) don't overwater or crowd seedlings
- **Seedling crowding:** transplant to larger pots before overcrowding begins or cut off unwanted plants at soil level
- **Leggy plants:** not enough light or warmth

Hardening Off Tips

- Know seedling tolerance for cool versus warm soil/air conditions
- Temperature important for tender plants is at night. Tomatoes, peppers and others needing warm conditions should not be planted out if night temperatures are lower than 10°C
- Put trays outside in part shade for a couple of hours per day gradually lengthening that period over a week to 10 days and with exposure to more direct sun.
- If conditions are still not optimal delay planting out
- Plant out when overcast
- Prepare for planting out: collect toilet rolls, compost, crushed eggshells, permanent labels, plan planting and spacing
- A week before planting out feed seedlings with diluted fish emulsion
- If using pressed peat pots remove the bottom, make holes in the sides and be sure no lip remains above the soil level