

# SOG Notebook for Urban Organic Vegetable & Herb Gardening

## Indoor Germination

By Rob Danforth

As daylight increases and the spring sun lingers longer, it is time to start seeds indoors for those plants that need a head start on our Ottawa (zone 5a) growing season so they will mature in reasonable time outdoors!

Our usual start dates are as follows:

**3<sup>rd</sup> wk. March** -- onions, eggplant, peppers, tomatoes & perennial herbs....

**last wk. March** – lettuces, if you wish an early crop

**1<sup>st</sup> wk. April** -- broccoli, cabbage...

**4<sup>th</sup> wk. April** – **most vines:** cucumbers, melons, pumpkins, squash, zucchini, ...

### Indoor Grow Lights

While sunlight is the very best option, often this is not practical for



homes and apartments with space and sunlight access issues. To take advantage of the spring sunlight, one would need a solarium or a heated greenhouse. Grow lights are a lot cheaper and the next best option. My wife and I have used grow lights with great success for the past 20+ years.

*(SunTech Ottawa LED's).*

Grow lights usually come in two lengths, 2 ft. or 4 ft. and there is a choice of full spectrum fluorescent tubes, T8 fluorescent tubes, T5 fluorescent tubes, and LED's (combination of blue and red colours). All work very well, however the most expensive are the LED's. There are

smaller desktop, single bulb, grow lamps which also serve well, but they will cover only a very limited number of seedlings. They are best suited to a potted herb or a pot of greens that will get to your table long before we can safely plant outside.

Depending on the size of your containers, calculate your needs based on one tray of 24 to 36 seed pots covered by a 2 ft. grow light



*(Seed tray)*. There are some elaborate lights and stands available but be sure the lights can be raised and lowered and plants can be uncovered (some T5's are fixed to the domes of one-foot covered trays and the light without the dome cover is unsupported).

We have both 2-foot full spectrum fluorescent tubes and 4-foot T8 tubes. The 4-foot tubes (in pairs) hang from the basement joists over top tables, and they are raised and lowered by means of chain (simple hook and eye system with figure 8 storm door chain). The 2-foot tubes are in stands with 3 fixed heights for the tubes, so we also raise and lower the plants when needed.



*4-foot T8's – T8 fits old fluorescent fixtures*



*2-foot grow light + aluminum foil reflectors*

Grow lights are much weaker than sunlight. To compensate, use aluminum foil to contain the light and reflect it onto the plants, and leave

the lights on for 16 hours per day. The tubes/bulbs should be within 2 inches of the soil and always 2 inches above the plants – the leaves must not touch the lights!

### **Indoor Sunlight**

If you have access to a sunny window, that will be enough to set seeds. Give the seeds as much sun as possible. Six to eight hours would be best. Be aware that less sunlight will slow the growth and increase the time needed to develop the plants. Also, on winter/spring nights, temperatures near windows are much colder and seedlings can be harmed. Move the plants away from the windows at night, or find a way to insulate them from the night cold.

### **Seed pots**

Starter pots are available in various materials, all of which work well but some are more ecological than others. We recommend 3-inch plastic pots (re-useable), or cow manure pots (no smell), or do-it-yourself newsprint pots. Peat pots are the most common, however the supply of



*Paper, coir, cow, & peat, Plastic & starch (light brown & grey), Plastic 9-plug* peat is dwindling every year and it takes many years to replenish – more than my lifetime. Coir, made from coconut husks, comes from away – we don't grow coconuts so the energy used to ship them has to be factored into the ecological cost. Starch pots are an option as well as bamboo but I have only ever found round ones, and their larger sizes are not practical for our seed trays.



Seed Trays are 1-foot 9-inches (54cm) x 11 inches (28cm), light plastic, easily punctured containers, and will hold twenty-four 4-inch seed pots or thirty-six 2.5-inch seed pots or three, 9-plug plastic seed containers.

### **Growing mediums**

There are seed starting mixes, soil-less potting mixes, and soil mixes available. Seeds germinate very well on their own, regardless of the growing medium. If in doubt about the viability of old seed, start the seed in the warmth and darkness on top of the fridge between two sheets of moist paper towel in a plastic food container with lid (make a few air holes for air circulation).

Keep the towel continually moist, and in about 10 days you will see which seeds are viable and which are not. Transplant these into seed pots and put them in the sunny window or under the grow lights. **Tip:** if the root has penetrated the paper towel (some definitely will), gently scissor around the root and plant the seedling with the paper stuck to it! The paper will biodegrade on its own.



*Seeds germinated on paper towel sandwich*



*Heathy seeding to be planted.*

Potting mixes (soil-less) do not have much nourishment for seedlings – 4 weeks is a good rule of thumb – then fertilize. However, I have had great success with the same soil I use in containers, a combination of 2/3's organic soil mix and 1/3 composted sheep manure (no smell).

**Note:** I prefer my compost over composted sheep manure, but my compost is still frozen, and besides, when I bring the outside inside, I bring in more than just the compost (compost + bugs + microbes + fungus + bacteria + seeds in the compost). With the added composted sheep manure, plants thrive without extra fertilizer. Saves storing various bags of soil and mixes – especially if storage space is an issue. However, a good fish emulsion (smelly) can be added to the water and this will promote green growth for the duration of indoor growing.

**Indoor Temperature --** The ideal should replicate nature -- warm days and cool nights. Lowering the thermostat at night will help. Another temperature consideration is extra warmth for those seedlings that thrive in warmer climates (e.g., peppers).



We use an *electric heating mat* under our tray of both hot and sweet peppers. The heat is very low and barely noticeable to the touch – it would not harm a child. However, protect the electric mat from water and do not let pets chew on it – the results would be hair raising!

### **Miscellaneous**

- a timer to activate the lights and the optional heating mat so the 16 hours of light are consistent even if you are sleeping in or out late.
- a fan to replicate nature's gentle breezes. No hurricanes please, but a gentle breeze from time to time across the seedlings will toughen the stems provide air circulation, and assist with humidity control (too humid helps fungus to grow).

Unfortunately, the usual dry atmosphere in our homes and the drying effect of a fan may deprive the seedlings of the moisture they need. Be sure to check the seedlings often and water them whenever they are

approaching dryness – do not let them dry out completely. After watering and after the pots have taken up the water, keep a little water in the trays but just enough to wet the bottoms of the pots – no wading! This will add moisture to the atmosphere. If you have a dehumidifier, you may want to keep it away from the seedlings.

**Water** as needed, not as scheduled. Water from the bottom if possible (pour water into the seed tray) but if not, use a mister to wet the seed pots from the top so as not to dig holes and re-arrange the seeds with poured water. Depending on evaporation, the pots may stay moist for a day or two. If the pots are too moist for too long, be on the lookout for grey mould or green moss which you may stir in after the seedlings have shown themselves. A fan helps with the drying.

If the pots have unfortunately dried out completely, then water from the top to re-start the siphoning process. Water evaporating from the soil surface will draw the water up from the bottom the next time you add water to the tray.

**Planting** -- the size of the seed suggests the depth of planting. If unsure, it is best to plant too shallow than too deep.

Plant more than you need as insurance against dead seed. We plant 2 large seeds (e.g., Zucchini) or 3 small seeds (e.g., Tomatoes & Peppers) per 2.5-inch seed pot.

Cover the seed trays to preserve moisture until the seed leaves appear – first small set of leaves – then remove the covers and store them. Too long under the tray covers leads to fungus and to “damping off” whereby the seedlings fall over and die.



*Covered seed trays*

*paper towel seedlings*

*labelled seed pots*

As the plants grow, take a pot of 3 seedlings and scissor out at soil level the two weakest plants – pulling them could harm all the plants in the seed pot as roots tend to tangle. NB for some gardeners, scissoring is hard to do – why cut a thriving plant?? – they look so good!! Be strong! If you leave all three, there may not be enough food or root room and all three may suffer – or you can gamble that they will all survive – I confess to the occasional gamble if the roots are not too tangled.

**Fertilizing** -- Fish emulsions and sea weed liquids (both have unpleasant smells) work well for green growth (high nitrogen content) if the need arises. However, if the soil you use is a mixture with compost, composted manure, or sea products, the seedlings should be fine for the limited time they are in doors. If you need to fertilize, best to put the fertilizer in the water and water from the bottom so as not to burn the seedlings. Also, add a little fertilizer to the water every time you water rather than fertilizing with a massive dose once a month.

**Hardening Off** -- As the time to transplant outside approaches remember to allow for the “hardening off” period (Trays outside in weak sun and protected from the wind. Increase the amounts of time slowly from one hour to full outside). We use a *4-shelf plastic enclosed plant tower* to protect the plants from the wind and cold.



The tower is on a 4-wheeled dolly so we can pull it about into the spring sun or into shelter as the need arises. We also use an *old chaise lounge* as a sun bus to move containers out into the sun or into shelter. A wagon or wheelbarrow would also suffice. In cold weather or high wind, we shelter the chaise and the tower. On two occasions, high winds blew over the tower containing 6 seed trays. This action destroyed many plants, dislodged most plant labels, and damaged the plastic cover -- we were not amused! Now we bungee cord the tower to a chain link fence!

Greenery is healthy for the mind as well as the body! Keep calm and green up wherever possible!

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