



RAHAMIM
ECOLOGY
CENTRE

Nursery

*“Gardening is an active participation
in the deepest mysteries of
the universe.”* Thomas Berry

“

These spiritual disciplines of renewal of life, by composting, renewing soils, growing food, saving water, generating energy from sunlight, wind and water, these will link us in local communities but these then relate to bigger communities and then ultimately to the whole Earth as our eco-community.

”

Rosemary Radford Reuther, 2015



What is a nursery?

A Nursery is a place where the environment and climate is mostly controlled.

A nursery is simply a protected space in which to start seeds, propagate cuttings or divisions, or other sensitive plants that need protection from wind, extremes in temperature, extremes in precipitation or frost. It is a place where the environment is controlled. The amount of moisture the new plant receives and the amount of heat the plant needs can be carefully engineered to give the plant the best chance to thrive.

The space for your nursery does not need to be large, just protected. There are nurseries that are small seed trays with plastic lids on them, horizontal windows held up with a few bricks. There are larger nurseries that you can walk into that are made from poly pipe, star pickets and some plastic film, or prefabricated greenhouse kits.



Why would you choose to run a nursery?

There are many reasons to propagate your own plants in your own nursery.

Propagating plants in a nursery gives you the ability to:

- Grow plants that you cannot easily find in your local nursery,
- Grow plants from collected seed from your area – this is a good way to ensure that these seeds have naturalised to your climate and region,
- Grow more varieties of plants that have been sent by mail. This allows you to be ultra-organised in your vegetable garden,
- Control the inputs in your garden – you are able to use organic inputs in your growing medium, and
- Recycle containers used for growing.



What do you need to run a nursery?

- Seed trays, these can be recycled Styrofoam boxes, ice-cream containers, toilet paper rolls, egg cartons or similar. Just make sure there is some drainage, and pervious material over the holes so that the soil doesn't fall through,
- Quantities of compost, coir, leaf mould, sand or perlite – to create your growing medium,
- Water – with a fine mist spray,
- A protected spot for your seeds and seed trays to grow, a greenhouse, glasshouse, an inside windowsill, or a recycled window hot-house,
- Plant tags, you can cut up an old ice-cream container into 100 X 10 mm strips to write plant details and dates of propagation for ease of management,
- Dibble stick, or pencil for making holes in the medium for cuttings or transplanting.

Seed Sowing



There are two ways to plant seeds. Either direct into the soil where the plant is to grow, or into trays or punnets for transplanting into the ground when the time is right.

Direct sowing can be useful for many plants especially those that do not like being moved. To direct sow these seeds the weather needs to be right. Depending on the type of plant you are growing the seed might need to have constant moisture after sowing until germination (e.g. carrots), it might need little to no water after sowing until germination (e.g. peas), they might need a minimum temperature in the soil for germination (e.g. tomatoes or runner beans). Whatever the needs are it is important to prepare the soil well, to eliminate competing growth and to fertilise the soil.

Sowing into punnets or trays can be useful for plants that have special needs for germination that the unregulated outside climate cannot supply at a time when it is needed. Sowing seeds earlier than the climate allows helps you to extend the growing season for crops that need a longer growing period than the climate allows. For example, you can grow tomatoes in punnets to allow the plants to get started well before the last frosts have occurred.

Planting seeds in a controlled environment such as a nursery allows you to plant when it is a convenient time. It is easier to monitor and control the climate that the seeds are germinating in, which in turn can speed up the growth and development of the plants. When sowing into punnets or trays it is extra handling in the pricking out and transplanting, and there is also a need to have more equipment and consumables to be successful: greenhouse (or similar), the punnets or trays, and the growing medium, but with planning recycling and some imagination you can reduce these inputs and still be a successful grower.

Planting seedlings into the ground also gives these plants a head-start in the competition for light and nutrients when looking at the unintentional plants that will grow after disturbing the soil.

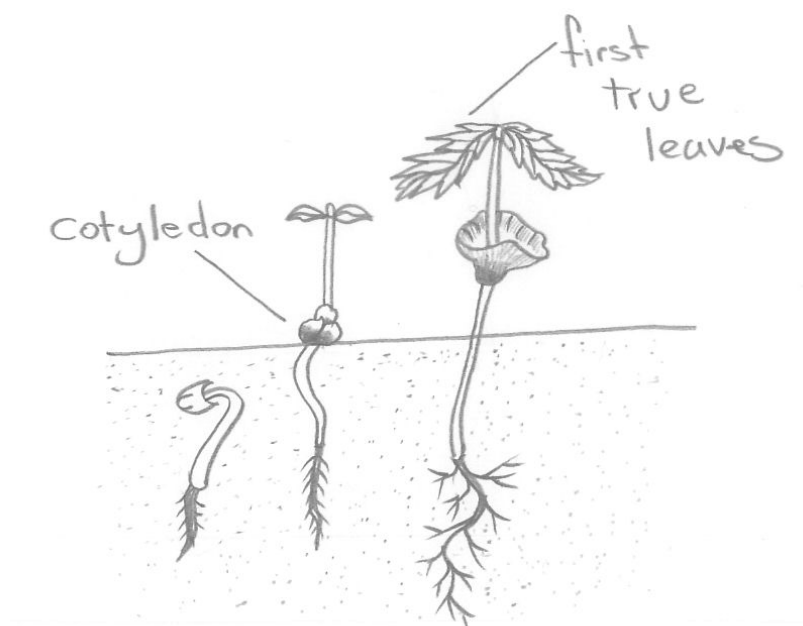
Which seed should you sow directly, or plant into trays? Or can it be either? [Gardenate.com](https://www.gardenate.com) can help you plan for which plants to sow and when. Just find your climate and the vegetable you would like to sow and it will tell you if it should be direct sowed, or into trays/punnets. The growing medium for starting seeds does not need many nutrients for the plant as the seed has everything it needs to start growing.

Sowing medium

1 part river sand : 1 part coir : (1 part loam)

Method

1. Apply pre-germination treatments to the seed if needed (soaking, cooling, heating or scarifying)
2. Select a suitable container (most seeds only need a shallow container to start with)
3. Fill container with moist (not wet) growing medium to 15mm from the top.
4. Tamp medium down to even and flatten the surface.
5. Sow seed as evenly as possible
 - Fine seed - use a shaker or mix with sand to lessen the quantity of seed in one spot.
 - Medium seed – shake packet or broadcast by hand – aim for an even spread of seed.
 - Large seed – space out manually by hand or singularly in small pots.
6. Cover the seeds with more growing medium. Cover the seed with approximately twice as much media as the size of the seed.
7. Gently tamp down the medium.
8. Gently water (with fine seed you can soak the container in water half way up the height of the container for a few minutes so the water can soak up into the medium).
9. Keep the growing medium moist, possibly watering two or three times per day gently until germination and then twice daily until pricking out.



Pricking Out



When the seedlings have developed two or three true leaves it is time to give the plants their own space. You can transplant each of them into their own pots or use larger pots to spread the plants thinly so their roots do not tangle together, and they do not shade each other out.

Work in a protected and shady area so the plants do not dry out. Work swiftly to avoid the plants being left out of their growing medium for too long.

Potting mix

1 part loam (or topsoil) : 1 part leaf mould (or coir) : 1 part compost (or worm castings)



Method

1. Prepare pots, tubes or trays by filling with moistened potting mix.
2. Loosen the growing medium from around the seedlings by tapping the bottom of the pot with plants in it.
3. Holding the leaves of the seedling (never the roots or the stem) and using a small dibble stick remove the roots and the growing medium from around each of the roots from the tray.
4. For each plant, use a dibble stick to create a hole in the new pot as deep as the plant's root system. Place the plant into this hole with the roots pointing downwards at the same depth, or a little deeper, as they were in the original pot. Alternatively, you can use a half-filled pot, hang the plant over this pot and add the medium to the roots.
5. Gently press around the stem of the plant to push the growing medium down.
6. Water the plants in.
7. Leave the plants in the same protected environment that they were in before pricking out for one to two weeks to allow the plants to recover.
8. Harden off the plants. Allow the plants to discover their outside environment. Take them outside for a few hours a day for a week or two in a progressively less protected spot, but closer to the environment in which they will ultimately be planted.

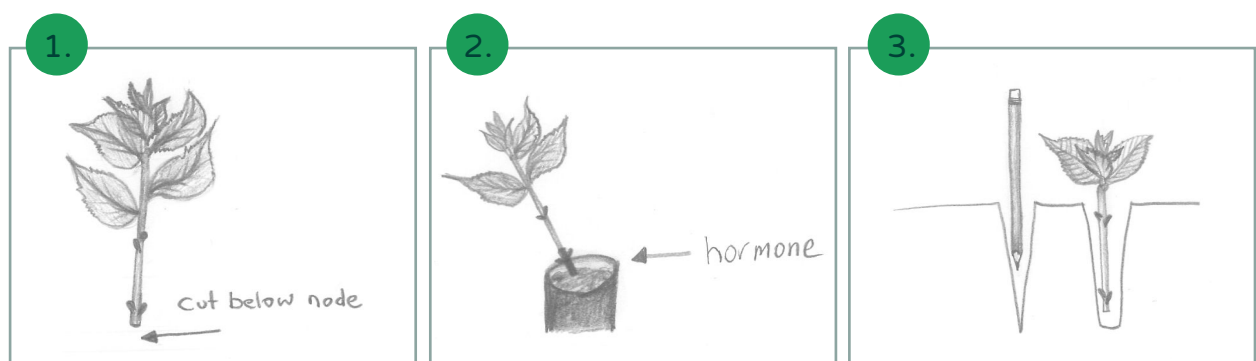


Cuttings

Some plants do not propagate well from seed as there is a lot of genetic variety in the seed of the plant. If a plant needs to cross pollinate with another plant of a similar species you can assume that there will be variety in its offspring. If the plant is no bigger than a medium sized shrub it is useful to propagate by cuttings. If it is a larger tree that you would like to propagate it might be necessary to look into grafting onto some strong rootstock.

Softwood cuttings: Take cuttings in early Summer. Remove up to 10 cms, or to the third set of leaves of the plant where the growth is the newest. Trim the lowest set of leaves and tidy the stalk by cutting perpendicular to the stem just below a leaf joint.

Semi-ripe cuttings: Take cuttings in mid to late Summer. Remove 5 to 10 cms of the plant from the growing tip. Strip the lower leaves of the cutting and aim to have each cutting the same size.



Planting Medium

3 parts river sand : 1 part coir

Method

1. Prepare the pots or trays by filling with moistened planting medium.
2. Prepare the cuttings from the desired and appropriate part of the plant.
3. Dip the base of the cutting into a rooting hormone (you can use raw honey, willow leaf crushed into water, or you can buy a specified product).
4. Create a hole in the growing medium and place the new cutting into the hole.
5. Press gently around to firm the growing medium around the plant.
6. Repeat steps 3, 4 and 5 until you fill the pot, with spaces between each plant to avoid overcrowding.

There are more ways to propagate plants. There are leaf cuttings, division and separation to add to these fully explained methods. Methods to help with this type of propagation can be found on various webpages or in general gardening books.

Resources

Growing medium information:

<https://www.growveg.com.au/guides/grow-better-plants-with-homemade-organic-potting-mixes/>

Watch some homegrown Aussie market gardeners create some very special potting mix with Costa:

<http://www.abc.net.au/gardening/factsheets/living-the-dream/9775942>

Listen to some Australian grown flower songs:

https://www.google.com.au/search?q=ross+edwards+flower+song&rlz=1C1NHXL_enAU765AU765&oq=Ross+edwards+&aqs=chrome.1.69i57j35i39l2j69i61l2j0.18478j0j7&sourceid=chrome&ie=UTF-8enAU765AU765&oq=Ross+edwards+&aqs=chrome.1.6-9i57j35i39l2j69i61l2j0.18478j0j7&sourceid=chrome&ie=UTF-8

Plans for your very own poly tunnel/green house

<https://www.limestonepermaculture.com/resource-downloads>

just change the netting in this plan for poly film

For information about which seeds to direct sow, or to sow in trays go to:

<https://www.gardenate.com/plants/>