



NATIVE PLANT PROPAGATION

WORKSHOP NOTES - 8th March 2008

Hosted by

Far South Coast Conservation Management Network

Presented by

Karen Walker

Lecturer of Horticulture – TAFE NSW, Illawarra Institute, Bega Campus.
Horticultural Consultant
Contact: 6492 2993

Workshop schedule

9:45am – 10:00am	Arrive greet and grab a cuppa
10:00am – 10:30am	Tour of nursery, inc steps of plant propagation.
10:30am – 11:00am	Theory and background information
11:00am – 11.20am	Morning tea.
11:20am - 12:45pm	Theory and background information continued
12:45pm – 1:30pm	Lunch
1:30pm – 3:00pm	Practical 'hands on' demonstration
3:00pm	Finish

NATIVE PLANT PROPAGATION

An assumption has been made that seed has been identified, collected, dried, labelled and stored using correct procedures, or that seed has been purchased from a reputable seed merchant.

Research & seed dormancy

Before proceeding with seed sowing, there needs to be some research undertaken: what is the best time of year, any particular methods of sowing, and importantly any *seed dormancy* issues. Seed dormancy is like animal hibernation-the seed is alive (viable) but will only germinate when conditions are most conducive to successful germination.

Pre-treatment of seed usually attempts to “trick” or break seed dormancy. The most common dormancy issue is hard seed coats, which are relatively impervious to water. Treatment of this is to crack or scratch the seed coat via: heat (either wet or dry), e.g. boiling water, microwave; or abrasion, e.g. sandpaper. There are many forms of seed dormancy and many methods of seed treatment including fermentation, use of acid, leaching and use of smoke.

Media & containers

The next two choices are:

- What sort of mix/media to sow into
- What type of container to use

The choices are many and varied! *Media* (any material used for sowing) can be pre-packaged seed raising mix or general purpose potting mix, or various ratios of coarse sand and peat (some like to use perlite and/or vermiculite). Peat moss is a natural, finite and dwindling resource, so use of modern coconut fibre “peat” is recommended. Garden soil should never be used in pots. Each propagator will have their own likes and dislikes, so choice is usually made through practice. Do bear in mind that if a sand/peat mix is used for seed germination, it is only to support the early growth of shoots and roots, not as a long term growing media: seedlings will need to be transplanted on.

Containers also vary considerably. There are multiple cell trays, seedling punnets, seedling trays, hyko cell trays, forestry tubes, and pots of all shapes and sizes. To explain them all would be far too tedious but try and think about the amount of space the roots will have as the seedling grows, and if you plan to transplant on from small or communal to large and individual. Recycling of pots is vigorously encouraged (saves money too) but you have to be prepared to clean and sterilise them i.e. scrubbing out with brushes to remove old mix and soaking in a bleach solution to surface sterilise. Again, there are many different methods of cleaning pots, but they all require time. One suggested bleach solution is 20-25 ml. bleach to 1 litre of water.

Workplace hygiene

An effort should be made to work in a clean area as diseases can be passed on through potting media to germinating seedlings. Washed hands (with or without gloves) are important, and if possible wipe or mist work benches with a bleach solution or generic antibacterial cleaner. Containers should be either new or cleaned as specified previously. Pre-packaged mixes are already sterilised.

Once all these informed decisions are made you can actually move on to the fun bit!

Seed sowing

1. Pre fill container (not full to the brim) with chosen media
2. Lay or sprinkle seed onto media surface
3. Cover with media to appropriate depth (see planting depth)
4. Tamp or press lightly to ensure contact of seed with media
5. Label – species, date, ?no. of seeds
6. Gentle watering/misting
7. Place in warm protected position i.e. hothouse/greenhouse
8. Anticipate germination in 2-4 weeks or longer-keep moist but not wet.

Planting depth

There is a general rule applied to depth of sowing of seeds; basically two to three times the depth of the seed itself. If the seed is very fine like tea dust you would barely cover it at all, whereas if it is thick like a bean seed you may cover it 2-3 cm. If seed is sown too deep the energy encapsulated within the seed will be exhausted before the shoot breaks the surface. Likewise, if seed is sown too shallow it will often dehydrate, wash out of the container when watering, or be exposed to too much light.

Germination & pricking out

As the seedlings are first emerging they are at risk in many ways. Watch for grasshopper and slug/snail attack, dehydration (not enough humidity or exposure to drying wind), and *damping off* which is fungal in origin and often associated with poor hygiene, over watering, and excessive humidity.

Pricking out is a recognised horticultural term which refers to the transplanting on of a seedling, often from a communal seed batch to individual containers. It is performed at a recognised stage of growth, when there are at least one set of true leaves (not *cotyledons*) and it is a delicate process as the seedlings are easily crushed or snapped. It is imperative that the root system is not kinked or bent up (*J rooting*) in the transplanting process as lax methods here will plague the plant 'til an early, untimely death.

Fertilisers & growing on

No mention has been made of fertilising to this point because it is again complicated by what media is chosen initially, and fertilising can often be overdone or incorrect. For instance, if seeds are sown directly into forestry tubes using general purpose potting mix you can incorporate slow release pellets into the mix or add some to the surface following germination. If seeds are sown into a sand/peat mix, fertiliser is not necessary till the seedling is settled following pricking out. As we are growing native plant species it is wise to use fertilisers formulated for the same, otherwise toxicity and death may result (to the seedlings, not the propagator!).

Growing on is literally as stated and can be most painstaking if they're not doing it fast enough. Once the seedlings reach a certain stage they can be moved on/out to areas with less protection (called *hardening off*) but it needs to be done in gentle increments e.g. hothouse to greenhouse to sheltered outdoors to full sun. Throughout their growth the seedlings will need constant moisture (one hot day without water in full sun can "cook" a healthy seedling), removal of weeds (reduce competition), follow up fertilising (depending on active period of chosen product) and general observation. Most seedlings will be ready to plant out into the ground between 6-9 months from germination.

Occupational Health & Safety

There are risks you should be aware of when performing seed propagation:

- a) skin irritation from seed, mix or fertiliser – use gloves
- b) inhalation of spores & bacteria from potting mix – work outdoors or in well ventilated area and use a mask.

NB *italics* have been used to emphasize horticultural terms

Useful references:

- "Growing Australian Native Plants from Seed" by Murray Ralph. 2nd ed. 2003, published by Bushland Horticulture, Melbourne
- Any good gardening textbook – look for propagation section
- Notes/booklets produced by Greening Australia, www.greeningaustralia.org.au/
- Notes produced by Far South Coast Landcare Association Community Seedbank, Contact: Liz Clark Liz.Clark@cma.nsw.gov.au
- Australian National Botanic Gardens www.anbg.gov.au/PROPGATE/plant01
- Association of Societies for Growing Australian Plants <http://asgap.org.au/>