

Germination of Seed of Rutaceae

The following information is from the Australian Native Plants Society (Australia) website.

John Knight is a former leader of the Society's *Boronia* (and Allied Genera) Study Group. The following article is reproduced, with minor amendments, from the June 1991 issue of the Group's Newsletter.

Subsequent to this article being written some successful germination of at least some Rutaceae has been demonstrated through the use of [smoke treatment](#).

Many books detailing propagation techniques suggest that, in general, germinating seed of Australian Rutaceae is difficult, the seed coat contains one or more inhibitors (natural chemicals) which prevent the seed from germinating until the inhibitors are neutralised. The best way to overcome the inhibitors is still a matter of research. Various techniques have been tried, but reliable data is not yet available to us, and no specific inhibitor has been isolated for a range of species. It is known that some species of *Boronia*, *Crowea* and *Eriostemon* exhibit both chemical and physical dormancy.

Because of the way seed is shed as it matures, collecting sufficient for experimentation is difficult. As many desirable species are successfully propagated by cuttings, work on seed germination has not been seen as important. It is known that early collectors were able to germinate seed of some species, and more recently limited seed trials have been undertaken. There is obviously a lot more work to do on this and on the systematics of *Boronia*, including the study of seedling morphology.

In overcoming the inhibitor to germination, a number of methods have been tried.

- Leaching involves placing the seed in a muslin bag, (or an old stocking) and tying the bag securely in a source of running water for between 1 and 10 weeks. It is obviously not practical to use a running tap, so a small permanent stream or river where the bag can be left safely is the only answer. The action of running water carries away the chemicals which inhibit germination. The seed needs to be checked regularly, as germination may occur whilst the seed is in the bag.
- Soaking in still water is not recommended as the seed tends to rot.
- Nicking the seed coat (testa) before leaching may improve germination, and reduce the time needed for leaching,
- Correas have responded to leaching in warm water, (impractical), and using an alkaline solution, pH9, for leaching has proved successful with other genera.
- Other methods worth trying include nicking the testa near the radical before sowing, completely removing testa, scarifying the seed by rubbing lightly with sandpaper, hot water treatment similar to that employed for *Acacia*, washing the

seeds in an acid solution for short periods, stratifying the seeds in a refrigerator for a period of weeks, and finally fire.

"It is not uncommon to.....notice many seedlings germinating in the months following a fire."

- It is not uncommon to visit a recently burned area and notice many seedlings germinating in the months following a fire. A number of years ago I chanced upon Gilgandra Flora Reserve, in central New South Wales, the spring following a fire, and *Phebalium nottii* had germinated in thousands, as had many other plants.
- A positive response has been noted with *Boronia* and *Crowea* when seed is stratified, then a fire set a top of the pot holding the seed. Use a terra cotta pot of course! Keep a small fire going for a few minutes using leaves, and when the ash cools, water the pot, and hope.

Should you be successful in germinating any seeds, the results would be of interest to all, so please keep records.

Seed of Western Australian species of *Boronia* have proved a lot easier to germinate than those of the eastern states, and without treatment in many cases. It was with interest that that I purchased a packet of commercially prepared seed of *Boronia pinnata* (an eastern species). The package gave 3 simple instructions for germination:

1. Sow 5mm deep in seed tray. Seedlings appear 14 - 20 days,
2. At 5cm high, transplant into tubes,
3. Plant out at 15 - 20cm high.

I followed the first instruction, and waited. It is now 16 months, and still no results. After 4 months, I phoned the company to ascertain how they arrived at the recommended instructions. I had assumed that some sort of pre-packaging treatment must have taken place. After the usual runaround, and speaking to a number of personnel, no one was able to offer any solution. However the packets are still being sold.

Despite the difficulties, a number of seedlings appear in gardens from time to time, Many growers have had correas pop up, and when I visited an acquaintance at Shepparton in north-east Victoria, he showed me a number of *Crowea exalata* seedlings which had germinated over a number of months. It's obvious that someone up there knows what to do!

When it comes to collecting seed, close watch needs to be kept on maturing fruit, as one warm day could be all that is needed for the fruit to disperse the seed to all parts of the garden. If you notice fruit setting, and the odd seed already dispersed it might be time to collect the rest. Seed collected just before maturity will be fine. Place the fruits in a paper bag in a warm dry place for a couple of days, and the seed should be released.

When and if it does, go to it! Try whatever method you like, and record your results. Best of luck.

References

1. Blombery, A., 1977 **Australian Native Plants**, Angus and Robertson, Publishers.
2. Elliot, W.R. and Jones, D.L., 1980, **Encyclopaedia of Australian Plants**, Lothian Publishing.



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