

PROBLEM

The environmental conditions that stimulate seed germination are poorly understood for many Australian native plants. You might like to investigate the conditions needed for germination of several related species, particularly those with horticultural value.

INFORMATION

1. Select species for which you can obtain large number of seeds so that you can have a good experimental design. Try and find out when the seeds germinate in the field as this might help you determine the most likely treatments to use. Avoid using orchids as they may have very special requirements like a suitable fungus being present.
2. Factors to investigate include
 - a) Hard seed coats (common in legumes). An impermeable seed coat prevents water

then immediately into
 - b) Germination inhibitor causing dormancy. Some seeds contain substances that prevent germination. These inhibitors are leached out over a period of time (maybe years). This can be hastened by washing seeds in running water. Place them in a cheese cloth bag

this in a year with water restrictions!). Other seeds have the inhibitors in the fleshy layers or dry bracts around the outside of the seeds. Test seeds with and without these layers.
 - c) Temperature requirement. Many seeds will germinate only at a particular temperature. You might be lucky and have a range of growth chambers or incubators to use, but if not

DESIGN OF EXPERIMENT

1. Think carefully about how many factors you can test with the number of seeds you have in hand.
2. Do you think it important to know the source and age of your seeds?
3. If you are doing an experiment over a period of a year how might you distinguish between an ageing of the seed (and possible change in internal inhibitors), and the effect of your various experimental treatments.
4. If you do an experiment and nothing germinates do you think it is o.k. to wash and dry those seeds and try something else?

REFERENCES

Black, M. (1972). Control Processes in Germination and Dormancy (Oxford Biology Readers No. 20) (Oxford University Press).

Mayes, A.M. and Poljakoff-Mayber, A. (1975). The Germination of Seeds (Pergamon Press : Oxford) (advanced reading).

Rogers, F.J.C. (1971). Growing Australian Native Plants (Nelson : Melbourne) Chp. 2.

Villiers, T.A. (1975). Dormancy and Survival of Plants (Edward Arnold : London) (advanced reading).

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