

Treating Seeds

Topic: Rehabilitation

Background Information:

The Jarrah Forest is renowned for its diverse flora; therefore restoring botanical richness in the new forests on the mined areas is a difficult, but critical objective for Alcoa. Rehabilitation techniques include returning the natural seed in the topsoil, applied seed and planting.

Some species are impermeable (eg. acacia) which means they cannot take up water or oxygen so they have to be treated to create cracks in the seed coats so water and air can be exchanged and the seed can germinate. This is usually done by boiling the acacia seed for 30 seconds in boiling water (place them in a bag and drop them in below the water line). This is very effective at cracking these species and germination usually begins within two weeks and is usually complete within 4-5 weeks.

You Will Need:

- 12 Acacia seeds
- 12 Eucalypt seeds
- 12 Grevillea seeds

The more seeds available the better - 10 per pot will produce better results than three per pot

- Additional seeds will be required if undertaking viability testing
- Nine plant pots filled with potting mix (*read packet warnings before handling potting mix*)
- Bag (Cloth or plastic) Pan Water Heat source
- Slotted kitchen utensil
- Smoking agent (available in sachets from stores)

What You Need To Do:

- Check seed viability:
When purchasing seed ensure that there are a sufficient number of seeds to undertake a seed viability test. Viability tests are conducted from a sample of the seed lot to ensure that good quality seeds have been purchased. Select some sample seeds from each of the varieties for viability testing (these will be discarded). Each seed should be cut in half length ways to ensure the embryo and endosperms are viable. A good seed should be yellow/cream coloured not dried, discoloured or shrunken around the edges. A scoring system can be used when judging the sample seeds e.g. 10 seeds tested with eight viable indicates an 80% viability rate.

Prepare the pots for planting seeds. Label pots: seed type, then untreated, heat treated or smoke treated

- Plant three of each variety seed in three of the pots (these untreated seeds are the control)
- Make a written observation of the appearance of the seeds prior to planting
- Place three of each variety of seed into the bag and seal
- Bring water to the boil then place the bag in the water for 30 seconds (use slotted utensil) alternately place seeds in a dish and pour boiling water on them allow to sit for 10 minutes changing the water as it cools
- Remove (with utensil) and allow seeds to cool. Make a written observation of the appearance of the seeds prior to planting then plant in pots
- Plant three of each variety seed in three of the pots, sprinkle smoking agent onto the soil and water in. Write observations
- Observe plants over a 4-5 week period keeping a record of any changes.

Extension/Alternatives

Research what seeds require assistance to germinate.
Research plants that don't produce seeds.

Final question:

What are the implications for rehabilitation?

Curriculum Links:

Society & Environment: Resources, Active Citizenship - Ecological Sustainability

Science: Investigating, Life and Living, Energy and Change

Technology and Enterprise: Technology Process

Mathematics: Chance and Data

Values

Environmental Responsibility

Conservation of the environment:

Sustainable development:

Diversity of species