1. THE ACACIAS

Ecological diversity

The Acacias (Wattles) are a diverse range of flowering plants that occur in nearly every major vegetation type across Victoria.

Wattles range from:

- low shrub and ground covers in drier environments; to
- tall forest trees in wet sclerophyll and temperate rainforest communities.

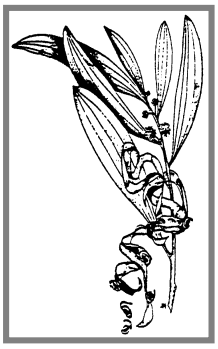
The main features of wattles as a group of plants are the diversity of habit and foliage form as well as the distinctive flower and fruit structure.

Foliage of Wattle plants may be:

- bipinnate leaves (eg. species such as Silver and Black Wattle); and
- "typical leaf-like" phyllodes (modified petioles) such as the foliage of Blackwood and Golden Wattle.

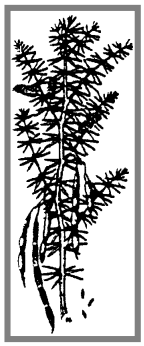
The flowers of wattles are tiny with long yellow stamens. These tiny flowers are crowded into flowerheads that may be called either rods or balls. These flowerheads develop into fruiting pods, usually containing several hard seed, often attached to the fruit by a structure known as a funicle. The very open, unprotected nature of wattle flowers makes them vulnerable to strong desiccating winds and rain or hail. If seasonal conditions are abnormally windy or wet, the result may be low seed set in quantity and quality.

Figure 1: Variations in flower structure, fruit and funicle.



A.melanoxylon

A.paradoxa



A.verticillat

Seed size, weight and shape

The seed of wattles vary in size but are usually from 3 to 10 mm in length. The seed coat is dark brown or black and the seed coat can have a glossy finish. The seed itself usually has a fleshy appendage known as an aril, as well as the funicle which attaches the seed to the fruit. Given below are some examples of variation in the size and shape of species of Acacia found in the Melbourne region.

Figure 2: Variation in Acacia seeds.

Acacia suaveolens

Acacia leprosa

Acacia melanoxylon

SEED GERMINATION DATA SHEET

Seed collection time

Both the fruit and seed of Acacia species hardens and darkens as it reaches maturity. Seed of most species ripens and sheds from the plant during early to mid-Summer, although some species ripen earlier and later than this. The technical data table lists the specific seed collection time-frame for selected Victorian species.

Seed cleaning techniques

Both the fruit and seed of Acacia species hardens and darkens as it reaches maturity. Seed of most species ripens and sheds from the plant during early to mid-Summer.

Fruit from smaller plants can be collected by hand and placed in a paper bag or stripped to fall on a groundsheet. The fruit of taller plants may be reached by an extendable pole pruner or a ladder. Collected fruit is stored in a protected, warm location and after a period of time, seed can be extracted by the use of sieves. Some species (e.g. Blackwood) require vigorous beating or rubbing of the pods to release seed, although heat applied at close range (e.g. from a small conventional oven) to the pods can also open them to release seed.

Germination techniques

Acacias are traditionally germinated by breaking the seed coat either by :

- **Boiling water** - boiling water is poured over the seed and the water left to cool for 12 - 20 hours.;
- **Physical damage** - rubbing or nicking the seed with sandpaper, or by using a mechanical scarifier.

Acacia seed can also be germinated from “green” seed which is collected before the seed coat has had a chance to harden. Such seed can be used for both propagation and direct-seeding purposes. In addition, direct seeding into tubes can be performed by sowing seed that has had an opportunity to begin the germination process. In this case, seed is treated and left in a small amount of cooling, boiled water until the radicle or first root of the seedling emerges and the germinated seed is direct sown at this stage into moist, prepared potting media.

SEED GERMINATION DATA SHEET

Germination characteristics

The following table lists an average number of seed per gram, a typical number of germinates per gram, and a typical viability range of seed calculated from this data. This data has been produced by Greening Australia Victoria (GAV) through the Melbourne Indigenous Seedbank.

Species	Seed collection time-frame	Green seed germination	Approximate time for total germination	Typical germination per gram	Range of seed count/gram	Typical % viability
Acacia acinacea	L. Dec - E. Jan	No	39 days	64	94-112	60-70%
Acacia dealbata	M. Dec - E. Jan	Yes	21 days	64	70-107	65-85%
Acacia genistifolia	L. Nov - M. Dec	No	-	64	95	60-70%
Acacia implexa	E. Jan - E. Feb	Yes	52 days	32	44-47	65-75%
Acacia leprosa	E. Dec - M. Jan	No	79 days	123	162	70-80%
Acacia mearnsii	M. Dec - L. Jan	Yes	50 days	45	65-73	40-70%
Acacia melanoxylon	L. Dec - M. Jan	Yes	63 days	30	58-90	25-55%
Acacia myrtifolia	M. Dec - M. Jan	No	25 days	79	102	70-80%
Acacia paradoxa	M. Dec - L. Jan	Yes	76 days	57	60-94	65-85%
Acacia pycnantha	L. Dec - L. Jan	Yes	88 days	35	43-60	55-85%
Acacia retinoides	E. Jan - L. Jan	No	25 days	59	63	80-100%
Acacia suaveolens	M. Dec - L. Jan	No	21 days	29	31	80-100%
Acacia verniciflua	E. Jan - L. Jan	No	43 days	62	78-103	60-70%
Acacia verticillata	M. Dec - L. Jan	No	24 days	58	150-232	30-40%

For further information :

Please contact the GAV Melbourne Indigenous Seedbank 9250 6869 or
the Alcoa Landcare Portland Regional Seedbank 5521 7856

References:

Ralph, Murray (1993), Seed Collection of Australian Native Plants for Revegetation, Tree Planting and Direct Seeding.
Costermans, Leon (1992), Native Trees and Shrubs of South-Eastern Australia. Weldon Publishing.
Langkamp, P.J. (ed) (1987),Germination of Australian Native Plant Seed. Inkata Press.