Information Sheet No. 48

Department of Conservation and Land Management

HONEY LOCUST
(Gleditsia triacanthos)

by A.J. Hart

This species originates from the United States, where it has a life span of at least 60 years, and is widely used as a street and shade tree.

There is an upsurge of interest in the species in W.A. because of its possible use in a similar way, and also as a source of animal fodder.

Being a legume, it is characterized by fast growth and nutritious fruits and pods. It is capable of being established over a wide variety of soils and rainfall.

Thorns

Most criticism of the species has been levelled at the enormous thorns that are borne on branchlets (photo 1), and are similar to mesquite thorns.

Although the true honey locust *(Gleditsia triacanthos)* does have thorns, *Gleditsia triacanthos* var. *inermis* is spineless, and its seeds bear true for that characteristic for up to 80 per cent of any one seed lot.

The spiny form has grown to 35 m tall and 37.5 m wide in Michigan, U.S.A., and is widely used there as substitute for elms. It is doubted if the trees could reach such size in W.A., but the variants could end up producing more robust specimens.

Horticulturalists bud or graft the spineless variety on to *Gleditsia triacanthos* stock. This procedure causes problems when the root systems are damaged because root suckers freely develop and rapidly sport ferocious thorns.

Seed

The seed is small, brown and flattish – similar in shape and size to carob beans. Seed of the two species could be confused, as could seeds of the thorny and thornless varieties.

The number of seed/gm is normally six.

Foliage and Bark

The foliage is one of the species' main attractions; it tends to be pendulous, and with age clusters towards the end of the branchlets. A cultivar known as 'sunburst' has golden tinges on compound leaves (photos 2-3).

From about 4-5 years to upwards of 20 years the bark is similar to cape lilac *(Melia azedarach)* – deep bluish-grey/brown with a noticeably lumpy surface.

The species is deciduous for short periods during winter and early spring, from about May to September under W.A. conditions.

Pod Development and Yields

Pods of both varieties first appear when the trees are about three to four years old, and numbers increase each year (photo 4).

Trees from moist fertile sites produce pods nearly twice the size of those from drier and shallower sites.

The following figures are a conservative estimate of pod yields.[1]

Age	
4-5 years	pods first appear
8 years	50-60 kg/tree
12 years	over 200 kg/tree
over 12 years	approximately 500 kg/tree

Assuming an upper yield of 270 kg/tree, with a stocking rate of 35 trees/ha, a total yield of 9 tonnes/ha could be obtained from year twelve onwards.

Food Values

Pods need no treatment before feeding to stock and can be stored for short periods (6-12 months) before deterioration. They are available when other rations are short – in summer and early autumn.

The pods are believed to help overcome problems with; breaks in wool fibre; and infertility in overstressed or underfed ewes. They may also help; increase milk production, allowing earlier and stronger lambs; maintain stock's body warmth; allow increased stocking rates; and reduce the need for supplementary feed.

Table 1: Relative Food Values of Various Fodder Trees

Tree Fodder Crop (100 g dry weight)	Protein	Fat	Carbohydrate
Ground peanut	30%	44%	17%
Carob	25%	12%	47%
Tree Lucerne	21%	3%	54%
Honey Locust	16.6%	7.5%	60.5%

Propagation of Seedlings

Pre-germination treatment involves hot water soaking for 12-24 hours, or nicking seed coats with a needle or sharp knife.

Where sufficient seed accumulates on shaded, moist, fertile soil, natural regeneration can occur, but such localities are rare in W.A.

Uses[2]

This species can be used for:
- Shade
- Fodder
- Honey
- Timber
- Firewood
- Landscaping (particularly 'Sunburst,' 'Moraine,' 'Columnar,' 'Calhour' and 'Milwood' cultivations)
- Possible source of automotive fuel (*Gleditsia triacanthos* contains 25 per cent glycoside, which – with bacterial fermentation of mixed species – yields ethanol from the carbohydrate-rich pods).

Diseases

Information is available from American publications.[3] The major disease is a canker, *Thyronectria austro americana*. The canker usually attacks following sunscald, pruning wounds or insect borers in newly established windbreaks. Shaded branches in older stands are also vulnerable. As they do not travel from branch to trunk, cankers rarely kill trees.

The disease has not been reported in W.A.

Conclusion and Recommendation

The threat of widespread establishment of the thorny true honey locust demands extreme caution with the import of honey locust seeds. Grafted stock already in W.A. will always remain a potential source of thorny plants from suckers produced after root damage.

However, the variety *inermis* does have potential as a multi-purpose tree. There is a need to establish the morphological differences between the true honey locust and the thornless variety. Then the latter can be traded freely with reduced risk.

While we are not opposed to field evaluation of the potential for the *inermis* variety, extreme caution is recommended and the risk of introducing or spreading the true (thorned) honey locust (*Gleditsia triacanthos*) should be avoided.

References

[1] *Western Farmer and Grazier*, 15 March, 1982.
[2] Stoutmeyer *et al.*, *Journal of Forestry* (U.S.), June 1944, p.32.
[3] Crowe, F., *Plant Diseases*, 1982, p. 155.

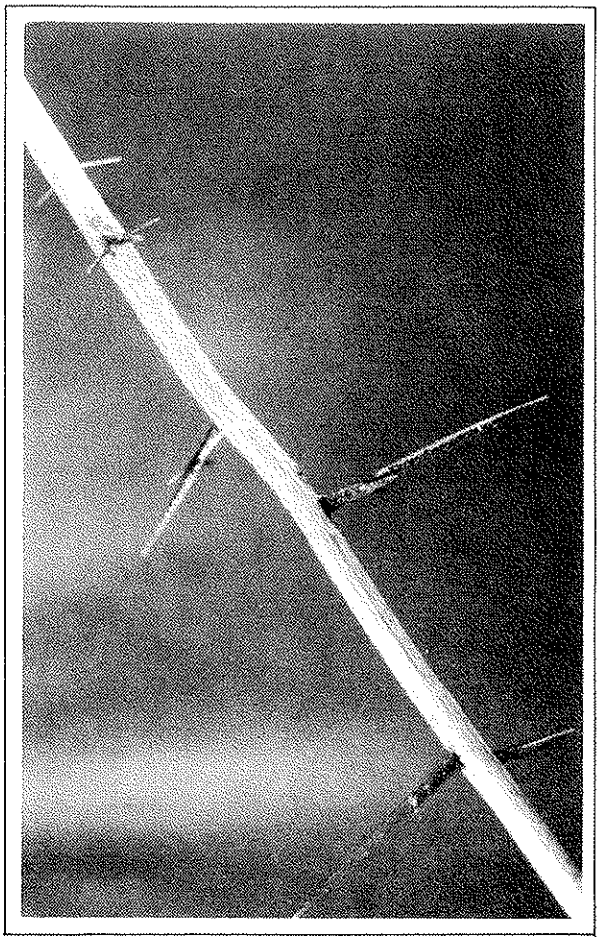

Photo 1 Thorns on branchlets.

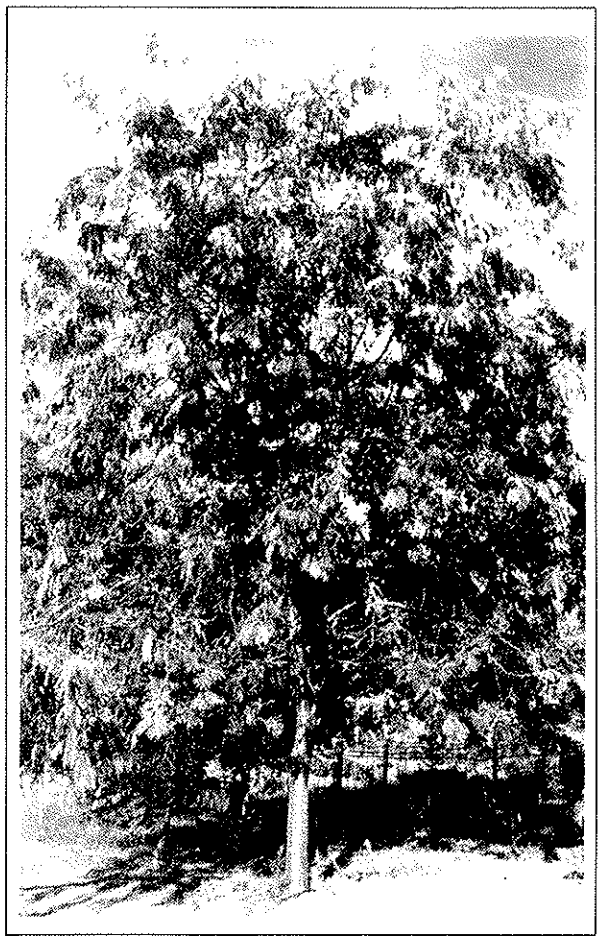

Photo 2 'Sunburst' variety.

Photo 3 Leaf shape of 'Sunburst.'

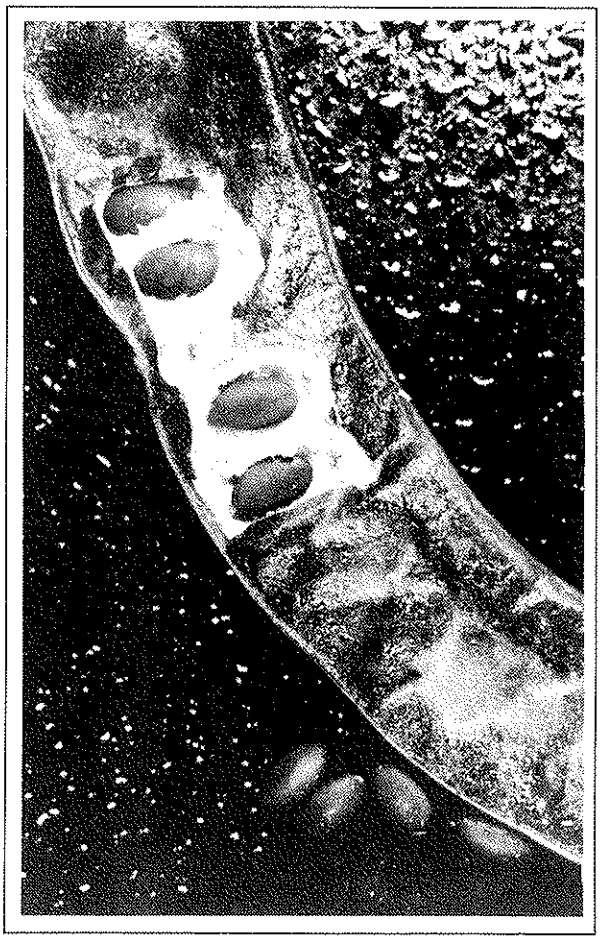

Photo 4 True honey locust seed pods.