

The plant is an evergreen, spreading and generally multi-stemmed small tree (2m to 5m high). Sharp spines are present at all stages of development, although spine-free (or almost so) plants are occasionally encountered. Leaves are blue/grey-green in colour and are 20 to 50 mm long. It is a nitrogen-fixing legume and a palatable stock forage species, which is browsed despite the sharp spines. Cattle are reputed to thrive on browsing the plant when in seed.

The plant exhibits moderate growth rates initially; becoming rapid once established, with early flowering (often in the second year after planting) and moderate to heavy crops. The tree generally lives for around 10 years.

Flowers are cream coloured and occur in August to December, depending on area. The round seeds, which mature between November and January, are borne in papery, oblong pods on the outside of the canopy. Mature pods fall readily and the seed can be separated with simple mechanical techniques.

This crop lends itself to dryland and irrigated cultivation. With attention to early pruning, the multi-stemmed habit can be trained into a single stemmed form suited to mechanical harvesting.

Other species

Several other Acacia species with edible seeds have attracted attention as being potentially suitable for cultivation. However, the market demand for these species is currently low or non-existent and any prospective producer would be wise to carefully investigate sales outlets prior to planting. These species include -

A. murrayana, which has a number of common names, including Colony, Murray's and Sandplain Wattle. It has a wide natural distribution, favouring well-drained soils in arid and semi-arid country from Narrabri in New South Wales to Shark Bay in Western Australia. Its growth and yields are good under favourable conditions, but it does not tolerate humid environments or drought conditions.

A. pycnantha, commonly known as Golden Wattle, grows on a range of soil types and is widespread in Victoria and occurs westwards to the Eyre Peninsula in South Australia and also near Canberra in the ACT and in southern New South Wales. Yields can be variable, though heavy in some years, and in cultivation plant deaths and pest and disease problems are reported to be common.



Fig 2. *A. retinodes*; stem and seeds

A. retinodes, commonly known as Swamp Wattle, Silver Wattle or Wirilda, occurs in south-eastern South Australia and southern Victoria as two forms; variety *retinodes*, which commonly occurs on poorly drained soils in open forests, inland from the coast; and variety *uncifolia*, which commonly occurs on calcareous coastal sand dunes. Irregular flowering and extended ripening may require multiple harvests and yields may be less than other species, although flavour is reported to be good.

Management approaches and issues

There a range of basic management approaches and issues that prospective wattleseed

growers and the wider industry will need to address, including –

Species, provenance and cultivars: Growers will need to determine the species that they wish to plant. While on-farm experimentation with a range of species could provide valuable information and perhaps uncover a useful species, it also poses a higher degree of production and marketing risk. Since *A. victoriae* is the current industry ‘standard’ and has a more secure market this species would normally be the first choice for most growers. Other species may have potential as an addition to an *A. victoriae* main planting or, in certain situations, as an alternative to *A. victoriae*.

Because of the genetic diversity of Acacias, the provenance (i.e. geographic source) of planting material may prove important. Among the factors that may be influenced by provenance are growth rate and form, spininess, yield and adaptation to soils and climates.

In the longer term, cultivars (i.e. cultivated varieties - clonally propagated selections) may become the norm for planting material, as is the case in many other crops.

Field Crop vs. Horticultural Crop: Acacia production could be approached as a minimal input large-scale field crop or a more intensively managed and smaller-scale horticultural crop. The field crop approach could involve practices such as direct seeding and dryland production, while a horticultural approach could involve planting established trees and irrigation. A combination of practices could also be employed (eg. planting established trees and dryland production). A field crop approach would aim to reduce production costs, while accepting lower yields, whereas a horticultural approach would aim to maximise yields, at a higher cost. As yet, the best management philosophy has not been determined and it is likely that a range of approaches may prove successful, depending on geographical areas, species and existing farm management practices.

Input management: The management of inputs, such as water and fertilizers, is likely to have an impact on tree growth rates, yields and plantation longevity, as well as interacting with other practices, such as pruning and training. However, optimum programs and strategies have yet to be determined.

Pests, diseases and weed control: The extent and control techniques for pests, diseases and weeds under cultivated conditions are also undetermined at this stage.

Pruning and training: Experience to-date indicates that pruning and training to achieve a single straight stem, suitable for tree shaker-style mechanical harvesting, appears to be feasible and necessary for normally multi-stemmed species, such as *A. victoriae*.

Harvesting: Mechanical harvesting appears to be a feasible proposition, with tree shaker-style machines, similar to those used in nut and olive production, the most likely option.

Wild harvesters or small scale producers place sheets or tarpaulins under the trees which are then beaten with a stick or a length of poly pipe, and the seeds are collected on the sheets.

CAUTION: Some people may be affected by bronchial problems during the harvesting and processing of wattleseed. It is thought that dust or fibres coming from the seed pods may cause a reaction.

Rejuvenation: Because Acacias may be relatively short lived, methods to rejuvenate plantings may be an important aspect of commercial production. Coppicing (cutting trees back almost to ground level to stimulate further growth from dormant trunk buds – although this would also tend to result in multiple stem development), pollarding (cutting trees back to a point some distance above ground level, to stimulate growth and particularly the development of a bushy crown) and/or shallow ripping to induce regrowth through suckering have been proposed, although these methods have yet to be trialed and perfected.

Conclusion

Although there is still much to be learnt about wattleseed production, the market demand for the product and our steadily growing knowledge base is likely to continue to stimulate interest and further plantings.

While it is difficult to predict costs and returns with any accuracy at this stage, some assumptions that could be applied include:

- A planting layout of between 6m x 3m to 4m x 3m (555 to 833 trees/hectare),
- a yield in the fourth year from planting of 1 kg/tree (a high estimate: 555 to 833 kg/ha),
- and a farm gate price of perhaps \$11-\$12 per kg for cleaned seed,
- giving a per hectare gross return of between \$6,105 and \$10,000.

The annual cost of production (which is difficult to estimate and is likely to vary significantly from planting to planting) has to be deducted from this gross return.

Further reading

Edible Wattle Seeds of Southern Australia: A Review of species for use in semi-arid regions. (1998) by Maslin *et al* is a useful reference work on species potentially suitable for cultivation and is available from CSIRO publishing (telephone 03 9662 7666).

Further information

Further information on native crops is contained in the other publications in this series:

Australian Native Citrus – Wild Species, Cultivars and Hybrids

Bush Tomato/Desert Raisin Production

Miscellaneous Native Food Crops – Davidson and Illawarra Plums

Miscellaneous Native Food Crops – Herbs and Vegetables with Potential in SA

Muntries Production

Native Food Background Notes

Native Food Crops - Frequently Asked Questions

Quandong Production

The Native Food Industry in SA

Mountain Pepper Production

These fact sheets are also available for download from the CSIRO/RIRDC Native Foods Website at www.cse.csiro.au/research/nativefoods/ and PIRSA website www.pir.sa.gov.au or from the national PrimeNotes CD.

Acknowledgements

The assistance of staff at the former Australian Native Produce Industries Pty Ltd in the preparation of the original publication (November 2001) is gratefully acknowledged.

Last update: March, 2006

Agdex: 350/30

Authors:

Anthony Hele occupied the position of Industry Development Consultant – Native Foods, a position which was jointly funded by Primary Industries and Resources South Australia and Australian Native Produce Industries Pty Ltd. These fact sheets have been updated by Yvonne Latham, Maarten Ryder and Marie O’Hanlon, CSIRO Sustainable Ecosystems.

Disclaimer

Use of the information in this Fact Sheet is at your own risk. The Department of Primary Industries and Resources and the CSIRO, and their employees and consultants, do not warrant or make any representation regarding the use, or results of the use, of the information contained herein in terms of its suitability, correctness, accuracy, reliability, currency or otherwise. All liability or responsibility to any person for any consequences, including but not limited to all losses, damages, costs, expenses and any other compensation, arising directly or indirectly from using this Fact Sheet (in part or in whole) and any information or material contained in them, is expressly disclaimed by the Department of Primary Industries and Resources and the CSIRO, and their employees and consultants.