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USE OF HARDWOOD BARK IN COMPOSTS

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Eucalypt bark is being composted by ponding it for 3 to 6 months and storing from 12 to 18 months prior to use. More research is needed, however as there are still a few problems to be sorted out, the method of composting and the time required being the most important.

Mr. Stan Clark, who is composting and marketing the material, believes a period of 20 to 24 months is essential to completely break down the solid particles of bark. He has found that after 18 months considerable heat returns to the stockpile if it is turned over. This pile should consist of at least 75 m^3 to get 55 to 60°C temperatures for pathogen control. This is achieved without the addition of any form of nitrogen. However, small trials in compost bins with chemicals added only gave 43°C for a period of eight days, but this then dropped back to 15.5°C.

Partly composted materials also create a problem with earthworms. They chew it up and almost completely empty tube stock, not leaving enough medium for the plant to exist on. Some toxins do remain and adversely affect growth. However, this can be improved by the addition of a nitrogenous fertilizer. Osmocote is very effective.

With some plants, particularly in the Primulaceae family, growth is excellent with rapid root penetration. We grew the best crop of polyanthus in 20 years with 100% bark, plus Osmocote, with a small amount of superphosphate added.

In the case of eucalypts and Australian natives large white roots can appear in a matter of three weeks in 12 cm pots. This can affect replanting in some cases as the root system does not always bind into the bark and tends to fall away when repotting.

There is almost complete absence of damping-off in shrub seedlings using straight bark compost provided the amount of water can be controlled. Mr. Clark is now getting almost 100% germination and growth on shrub seedlings that were previously impossible to grow. Water-holding capacity is excellent and plants do not wilt during hot weather.

The compost is weed-free but weeds do appear at a very rapid rate where seeds are introduced by physical means and, with the addition of fertilizer, their growth is even more rapid. Due to the pugginess of the material when subjected to very wet conditions, current experiments involve the addition of sand to the mix. Proteas and banksias seem to benefit more than others, but mixing sand with bark does necessitate sterilization unless it can be blended prior to composting and heated in the heap. The nitrogen requirement for hardwood bark is greater than that required for softwood bark due to a faster rate of decomposition in the hardwood.

We have used Osmocote slow-release fertilizer after composting and have found it to be very efficient although recent tests with ammonium nitrate also seem very promising.

After extensive tests in the neat bark, there were no detectable toxins present. There seems to be some evidence of antagonists as reinfection by *Pythium* and *Phytophthora* is minimal. The use of fresher bark during winter months is also advisable due to the more fibrous nature of the material.

Another problem we encountered was the fungus gnat. This pest breeds in winter months under glasshouse conditions and the control used was regular spraying with Dichlorvos. The ideal treatment would have been a drench, but growing indoor plants, we did not think that this was advisable so we gradually

Table 1. Analysis of worm casts and eucalypt bark as obtained by the Tasmanian Department of Health Services.

	Worm Casts	Eucalypt Bark
	Reaction (pH)	
	7.4	6.2
Inorganic materials	per cent	
Total soluble salts	0.11	0.10
Sodium chloride (NaCl)	0.11	0.04
Total nitrogen (N)	0.26	0.32
Total phosphorus (P)	0.08	1.03
Total potassium (K)	0.18	0.12
Total calcium (Ca)	0.69	0.68
Total magnesium (Mg)	0.16	0.17
Total sodium (Na)	0.11	0.12

diminished the problem by eliminating the adults.

Table 1 shows an analysis of eucalypt bark and of worm casts.

In conclusion, eucalypt bark can be expected to be of considerable benefit to the nursery industry in the future, particularly with the price of peat moss escalating at a very rapid rate.

USE OF SIERRA BLEND PLUS 100-DAY OSMOCOTE ON NATIVE PLANTS

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When Sierra Blen Nursery Mix (19-6-10 + iron) was initially marketed in Perth, Australia it was inferred that we need not use a primary souce of nitrogen to counteract drawdown on a sand and sawdust mix. We decided to conduct our own trials to determine if this was the case, using 160 plants in 8 groups:

Group I. 4 pounds U.F.38 lime, trace elements, 5 pounds 280-day Osmocote. (Control)
Group 2. 4 pounds U.F. 38 lime, 5 pounds Sierra Blend
Group 3. 4 pounds U.F. 38 lime, 4 pounds Sierra Blend, 1 pound 100-day Osmocote
Group 4. 4 pounds U.F. 38 lime, 3 pounds Sierra Blend, 2 pounds 100-day Osmocote
Group 5. 4 pounds U.F. 38 lime, 4 pounds Sierra Blend, 2 pounds 100-day Osmocote
Group 6. 4 pounds U.F. 38 lime, 2 pounds Sierra Blend, 2 pounds 100-day Osmocote
Group 7. 4 pounds U.F. 38 lime, 2½ pounds Sierra Blend, 2 pounds 100-day Osmocote
Group 8. 4 pounds U.F. 38 lime, 1 pound Sierra Blend, 2 pounds 100-day Osmocote

The plants selected for experimentation were *Grevilea biternata, G. robusta, G. rosmarinifolia, Eucalyptus lehmannii,* and *E. platypus*. Four of each type were used in each of the eight treatments. Plants were propagated in a soil-less mix combining 1 part German peat, 1 part bluemetal and 1 part perlite with 5 pounds of 100 day Osmocote to the cubic yard.

Our normal potting mix, 2 parts sawdust : 1 part white washed sand, was used for growing on, together with the components listed above.