CURRENT AND FUTURE PERSPECTIVES FOR THE AUSTRALIAN BAMBOO INDUSTRY - ANALYSES OF A SURVEY QUESTIONAIRE

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In August 1997 a survey questionnarie was mailed to approximately three hundred and sixty persons/entities with a known interest in bamboo ranging from the esoteric to the commercial and from the nursery level to information provision. Only 55 responses were received, for the questionnaire was specifically designed to capture information on plantings of bamboo for commercial production of culinary shoots and/or timber.

Questions relating to the current and proposed plantings were posed, but due to incomplete filling out of the questionnaire, numbers of responses to questions do not always tally with the total number of respondents.

Responses were received from the following regions:

Queensland

Stanthorpe, Lowood, Bororen, Pomona, Maleny, Dayboro, Benaraby, Yandina, Bundall, Tolga, Mace, Agnes Water, Bundaberg, Belli Park, Gympie, Murray Upper, Ferny Grove, Giru, Eudlo, Malanda, Tiaro, Manly, Eumundi, Landsborough, Wamuran, Beerwah, Cooktown.

Northern Territory

Winnellie

New South Wales

Katoomba, Nambucca Heads, Crabbes Creek, Nimbin, Wadeville, Valentine, Condobolin, Barham, Murwillumbah, Mullumbimby, Uki, Stokers Sidling, Nimbin, Lillian Rock, Thora, Byron Bay, Unanderra.

Western Australia

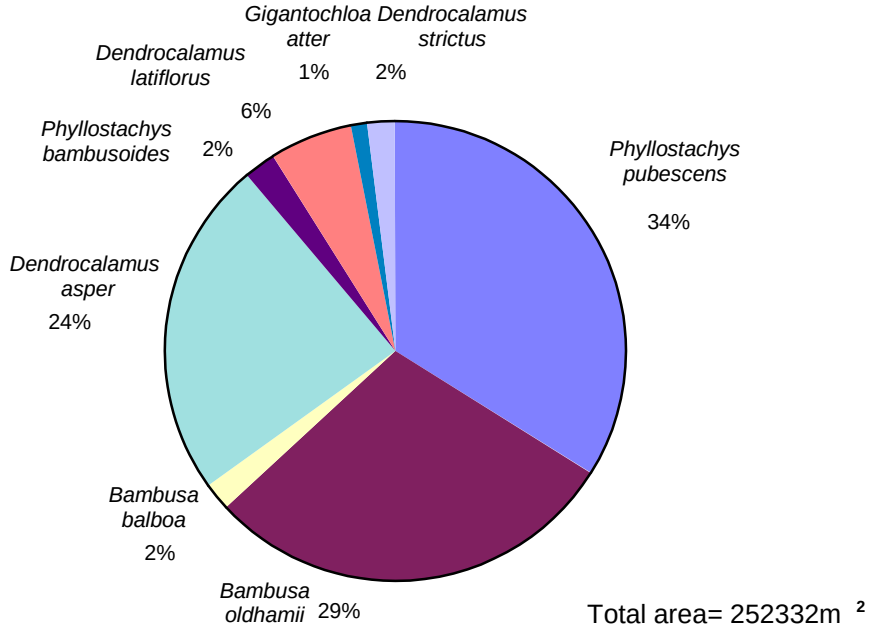
West Perth, Kalgoorlie, Denmark, Coolup, Balingup, Henley Brook.

The current and proposed areas of commercial plantings

The current area of commercial plantings is 252332 m^2 (Figure 1). *P. pubescens* and *B. oldhamii* account for the largest percentages of total current area, at 34% and 29% respectively. Some responses referred to small numbers of plants, and these were ignored due to their lack of relevance. Figure 1 shows only species that represent 1% or more of total plantings. Of all the responses received, only three growers are presently harvesting any timber or shoots. All three of these growers are producing both shoots and timber.

Figure 1

Current area of bamboo species grown (1997)



The sources of the two main species currently grown, namely *B. oldhamii* and *P. pubescens* are from a magnitude of origins, as shown in Figures 2 and 3. It appears that the clumping type, *B. oldhamii* is more frequently propagated by the growers themselves compared to the running type *P. pubescens* which seems to originate from China and a significant amount from Bamboo Australia.

Figure 2

Sources of *P. pubescens* currently grown.

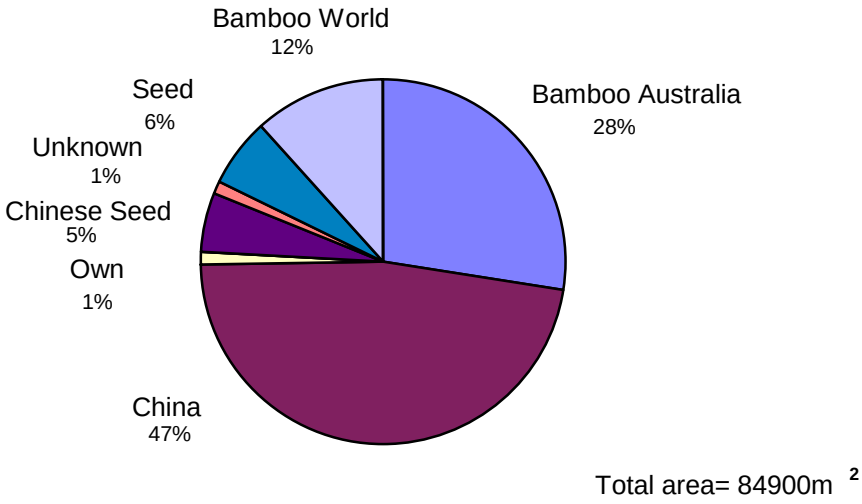
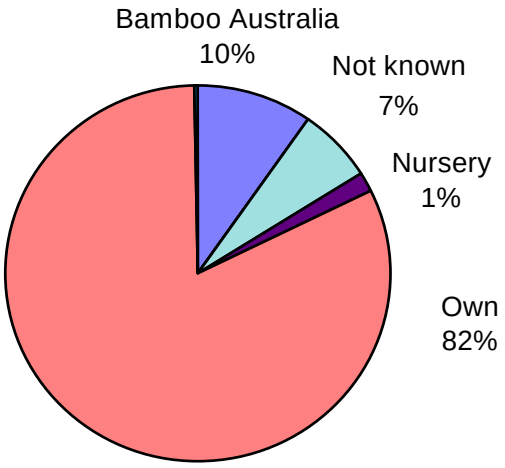


Figure 3

Sources of *B. oldhamii* currently grown.

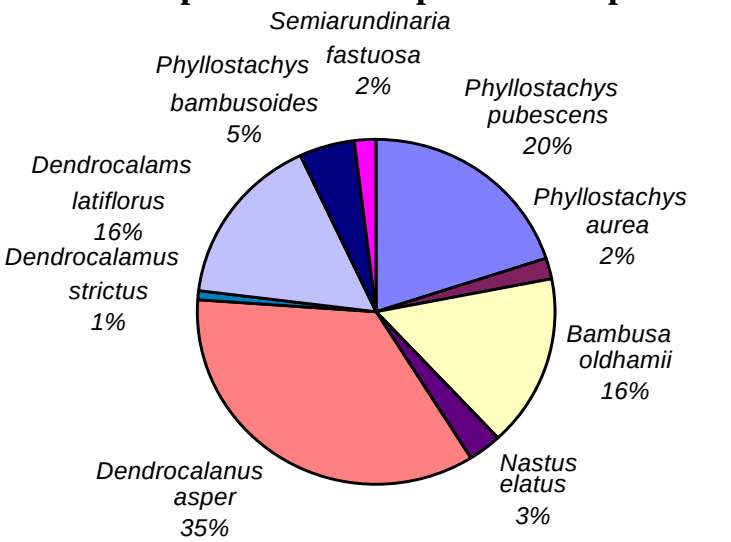


Total area currently grown=73246/m^2

The proposed area for plantation (Figure 4) is double that of current plantations, and is predominated by plantings of *Dendrocalamus asper*, reflecting the lower-priced tissue culture plants on order from Bamboo World. Proposed plantings of *D. asper* are in the QLD, NSW, NT, and WA while *Bambusa oldhamii*, is planned for QLD, NSW, NT, and WA and *Phyllostachys pubescens* for Qld, NSW, and WA.

Figure 4

Proposed area of species to be planted

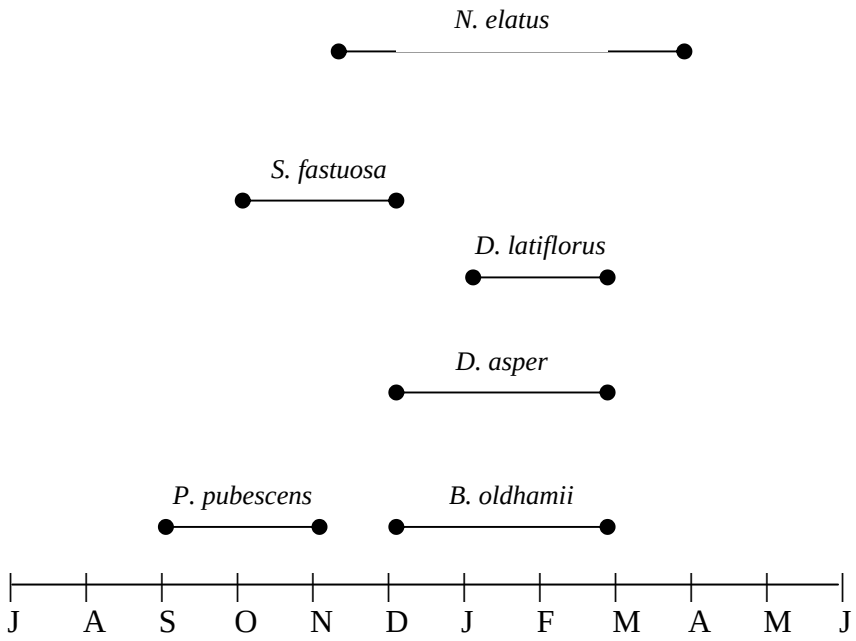


Total area: 600 040m^2

The period of shoot production stretched from early harvests of running bamboos in September (*P. pubescens*) to late harvests of clumping bamboos in April (*D. asper; B. oldhamii*), and are depicted in Figure 5.

Figure 5

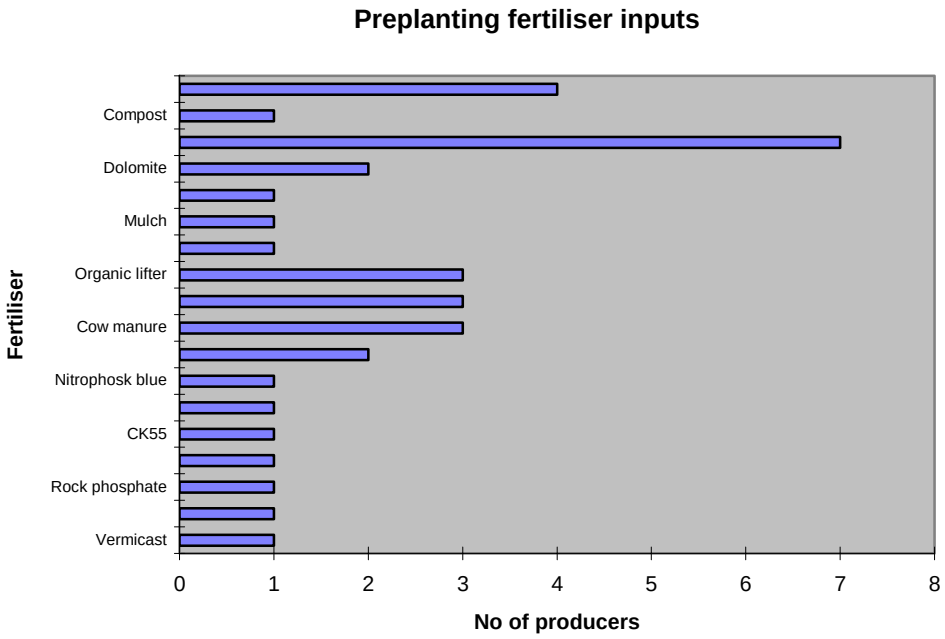
Period of shoot production by various species of bamboo grown in Australia.



In Western Australia shoots of *B. olhamii* were formed from December onwards, one month earlier than in Queensland, whereas *P. pubescens* produced shoots in Western Australia over a one month period, compared to two months for Queensland. Data from the Northern Territory suggest that clumping species such as *B. oldhamii* start shoot production in October and extend to February, while others such as *D. asper* and *D. latiflorus* begin closer to December and continue into March. A complete impression of the shoot season, for each species across Australia is still required before attempts at environmental manipulation, to extend the season can be formulated.

Irrigation and mineral nutrition were addressed in the questionnaire and 24 producers used irrigation while 1 did not. Young plants were hand and dipper irrigated, while older plants received sprinkler/spray irrigation. Only 1 property had had soil analyses, and most fertiliser application was reported by non-objective, and requiring validation. Dynamic lifter was the most common pre- and post-plant form for fertiliser application, with very few producers using inorganic fertiliser (Figure 6).

Figure 6.



While most producers had to contend with weeds, predominantly by mowing or hand but some with mulch or herbicide, fewer reported pest or disease constraints, although 20% of producers had some problem with kangaroos or wallabies before fencing-off their plantation. Weed control in running types is rather more problematic, for brush cutting can remove young shoots and tender stems in the canopy closure phase.

Data for yield and price are still very premature with *P. pubescens* yielding in the range 4-15 t/ha, the higher yield under well-irrigated conditions. Full stands of other species are not yet established hence yield data are not forthcoming. Up to $20/kg in 1995/96 was achieved for *P. pubescens*, but average values for *P. pubescens*, *B. oldhamii* and *B. balcoa* range from $4-7/kg landed on the southern markets.

Post-harvest practices are still rudimentary; after harvest with a purpose-built sharp spade, shoots are packed in polystyrene boxes and stored in an airconditioned or cool room before transporting. More recently, cardboard boxes lined with "long-life" [e.g. Gelpack] packaging has been preferred by the market, and even the polyethylene packaging has been omitted as requested by customers. Most producers prefer to market fresh produce (>60% responses), but some consider steaming and snap freezing (fast chilling) as options for storage prior to marketing. No long term storage is currently undertaken by producers in Australia. Anticipated markets include both wholesale and restaurants, with *Nastus elatus* and *Gigantochloa atter* destined for the latter.

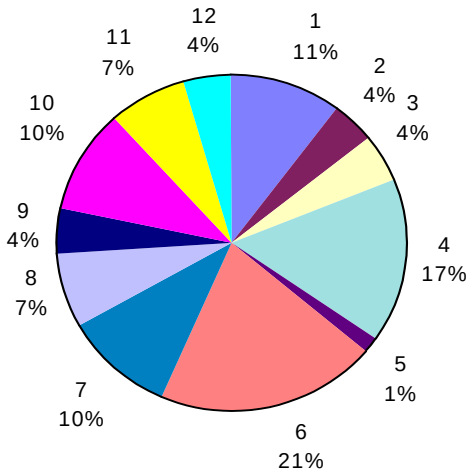
Responses to questions relating to quantity of timber to be harvested were speculative: *P. pubescens* expected to give 200-300 culms/ha at 7.5 years of 5-7.5 cm diameter, with 230-260 culms/ha and 10-15 cm diameter at 10 years; *D. latiflorus* at 6.5 years to give 280-350 culms/ha of 7.5-10 cm rising to 300-500 of 10-15 cm beyond 7.5 years; and similar figures for *D. asper*. Retail price was currently $1.00 per m per 2.4 cm diameter.

While it is likely that all producers are engaged in some manner in their own research, all indicated a willingness to have formal research conducted on their properties.

Limitations and concerns were addressed in two questions, and responses are given in Figures 7 and 8. Marketing was emphasised as a major limitation and major concern, as expected for the introduction of a new product, with potential consumer resistance (of fresh vs. imported preserved shoots) and great degrees of uncertainty. There is also scope for training, for 17% respondents expressed lack of cultivation knowledge. Knowledge of propagation, and therefore reduction in start-up costs, was another important issue, but other issues were more site-specific in nature, and not meriting group attention.

Figure 7

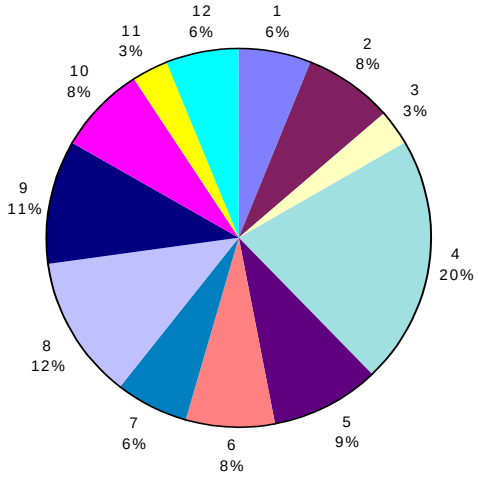
Major limitations of Australian bamboo industry expressed by bamboo producers.



No on chart.	Limitation Expressed by producers.
1	Lack of water irrigation.
2	Labour
3	Insufficient land available.
4	Lack of cultivation knowledge
5	Uneconomical.
6	Lack of marketing structure.
7	Small market.
8	Lack of consumer knowledge/confidence.
9	High initial finance.
10	Availability and cost of propagation material.
11	Time factor involved.
12	Lack of processing knowledge.

Figure 8

Major Concerns of Australian bamboo industry.



No. on chart	Concern expressed by producer
1	Price fixing
2	Quality problems
3	Drought / irrigation
4	Market problems / difficulties
5	Diseases / pests
6	Timber aspects
7	Suitability / knowledge of species
8	Oversupply / production surges
9	Revenue of product(s)
10	Running species becoming a pest
11	Growing environment
12	Export potential

Overall, the survey results illustrated the lack of linkage between vision and reality, the lack among many current and prospective producers of a business plan, and a great need for information exchange. It may be that most producers do have their business plans, and are reluctant to divulge details that could be considered as commercial advantages, but this is unlikely.

The willingness of all respondents to become engaged in formal research is very promising for the industry, for generic research on production, post-harvest and market access can only benefit the whole industry. To that end the latter part of the workshop was focus on research updates and establishment of a bamboo association.