



Improving Access to

# **Bushfood Production & Marketing Information**

A report for the Rural Industries Research  
and Development Corporation

by Atech Group and Total Earth Care

November 1999

RIRDC Publication No 99/158  
RIRDC Project No AQU-1A

© 1999 Rural Industries Research and Development Corporation.  
All rights reserved.

ISBN 0 642 57997 0  
ISSN 1440-6845

*Improving Access to Bushfood Production & Marketing Information*  
*Publication No. 99/158*  
*Project No. AQU-1A*

The views expressed and the conclusions reached in this publication are those of the author and not necessarily those of persons consulted. RIRDC shall not be responsible in any way whatsoever to any person who relies in whole or in part on the contents of this report.

This publication is copyright. However, RIRDC encourages wide dissemination of its research, providing the Corporation is clearly acknowledged. For any other enquiries concerning reproduction, contact the Publications Manager on phone 02 6272 3186.

#### **Researcher Contact Details**

Dr Laslo Nagy  
Atech Group Pty Ltd  
ACN 008 601 689  
42 Jaeger Circuit  
BRUCE ACT 2617

Tel: 02 6251 3368  
Fax: 02 6251 3060

#### **RIRDC Contact Details**

Rural Industries Research and Development Corporation  
Level 1, AMA House  
42 Macquarie Street  
BARTON ACT 2600

PO Box 4776  
KINGSTON ACT 2604

Tel: 02 6272 4539  
Fax: 02 6272 5877  
Email: [rirdc@rirdc.gov.au](mailto:rirdc@rirdc.gov.au)  
Internet: <http://www.rirdc.gov.au>

Published in November 1999  
Printed on environmentally friendly paper by Canprint

# Foreword

The Australian bushfood industry is a relative young industry. Like most young industries, it is constrained by limited information on production techniques and marketing opportunities.

This research paper was commissioned by RIRDC as a first step in the process of overcoming these information constraints. It provides a scoping study for a Bushfood Industry Database. The research paper provides:

- a review of literature and information on the bushfood industry;
- a discussion of the issues to be considered in developing a bushfood industry database;
- consultation with the bushfood industry on a bushfood industry database;
- synthesis of consultation and findings into a user requirements specification;
- design of the database from the user requirements specification;
- implementation strategy for the database;
- conclusions;
- references; and
- appendices with relevant information.

The report recommends that instead of a single central database, a system of several smaller but inter-linked databases may be more viable.

It further recommends that although several distribution methods are possible for the database, the internet provides the single most effective distribution method.

This report, a new addition to RIRDC's diverse range of over 400 research publications, forms part of our New Plant Products R&D program, which aims to facilitate the development of new industries based on plants or plant products that have commercial potential for Australia.

Most of our publications are available for viewing, downloading or purchasing online through our website:

- downloads at [www.rirdc.gov.au/reports/Index.htm](http://www.rirdc.gov.au/reports/Index.htm)
- purchases at [www.rirdc.gov.au/pub/cat/contents.html](http://www.rirdc.gov.au/pub/cat/contents.html)

## **Peter Core**

Managing Director

Rural Industries Research and Development Corporation

## **Acknowledgements**

Funding for this project was provided by the Rural Industries Research and Development Corporation (RIRDC) and the Atech Group. The study team would like to acknowledge the support and input of Dr David Evans from RIRDC. The study team would also like to acknowledge the input of individuals and organisations (listed in Appendix II), that provided information to the study.

# Contents

<b>Foreword .....</b>	<b>iii</b>
<b>Acknowledgements .....</b>	<b>iv</b>
<b>Contents .....</b>	<b>v</b>
<b>About the Authors .....</b>	<b>vii</b>
<b>Abbreviations .....</b>	<b>viii</b>
<b>Executive Summary .....</b>	<b>ix</b>
<b>1. Introduction .....</b>	<b>1</b>
1.1 About the project	1
1.2 About Australian bushfood	2
1.3 About the Australian bushfood industry	3
1.4 Project purpose	4
1.5 The project's potential benefits	5
1.6 Report structure	6
<b>2. Review of key literature and information regarding the bushfood industry .....</b>	<b>7</b>
2.1 Methodology	7
2.2 Results	7
<b>3. Issues to be considered in developing a bushfood industry database .....</b>	<b>9</b>
3.1 Do information deficiencies impede bushfood industry growth?	9
3.2 Can deficiencies be addressing by some form of database?	10
3.3 Which industry segments would benefit most from a database?	11
3.4 Database type – encyclopedia or directory?	12
3.5 Which of the industry's activities will benefit most from the proposed database solution?	13
3.6 What forms of database would be most useful?	15
3.7 Database viability and willingness to pay	16
3.8 Funding possibilities?	17
3.9 Other issues	18
<b>4. Consultation with the bushfood industry on a bushfood industry database .....</b>	<b>19</b>
4.1 Background	19
4.2 Information exchange	20
4.3 Feedback loops	23
4.4 Validation and consistency checking	23

<b>5. Synthesis of consultation findings into a user requirements specification .....</b>	<b>25</b>
5.1 Threshold issues	25
5.2 The user group for a bushfood industry database	27
5.3 Matching database functions to industry requirements	27
5.4 Conclusion	29
<b>6. Design of the database from the user requirements specification .....</b>	<b>30</b>
6.1 Specifying the information management process requirements	30
6.2 The rationale underlying the design basis	32
6.3 The system design	35
<b>7. Implementation strategy for the database .....</b>	<b>39</b>
<b>8. Conclusions.....</b>	<b>40</b>
<b>9. References used in the report.....</b>	<b>41</b>
<b>Appendix I - Review of information on bushfood.....</b>	<b>43</b>
A.I.1. Book	44
A.I.2. Periodicals, fact sheets, research projects and research papers	54
A.I.3. Internet sites and email addresses	60
A.I.4. Videos	67
A.I.5. Organisations involved in the bushfood industry	68
A.I.5.1 General	68
A.I.5.2 Nursery suppliers	77
A.I.5.3 Bushfood processors	78
A.I.5.4 Buyers of bushfoods	80
<b>Appendix II - Individuals and organisations contacted for consultation .....</b>	<b>85</b>
<b>Appendix III - Questionnaire used for consulting with the bushfood industry on the bushfood industry database.....</b>	<b>91</b>
<b>Appendix IV - Background information used in consulting with the bushfood industry on the bushfood industry database.....</b>	<b>97</b>
<b>Appendix V - Summary of consultation: a paper provided to respondents for any additional comments following the consultation process .....</b>	<b>100</b>

## **About the Authors**

### *Atech Group*

Harvey Anderssen

Dr Bob Banens

Pearl Chao

Cynthia Nagy

Dr Laslo Nagy (Project Manager)

David Tait

### *Total Earth Care*

John McCarthy

## Abbreviations

ABF	Australian Bushfood Federation
ABS	Australian Bureau of Statistics
AEF	Australian Ethnobotanical Foundation
ALGA	Arid Land Growers Association
ANBIC	Australian Native Bushfood Industry Council
ANBRC	Australian Native Bee Research Centre
ANPI	Australian Native Produce Industries
AQIA	Australian Quandong Industry Association
ARBIA	Australian Rainforest Bushfood Industry Association
BTSA	Bush Tucker Supply Australia
CALM	Conservation and Land Management (WA)
CDEP	Community Development Employment Program
CD-ROM	Compact Disk Read Only Memory
CLC	Central Lands Council
CORBA	Committee of Regional Bushfood Organisations
CSIRO	Commonwealth Scientific and Industrial Research Organisation
GA	Greening Australia
GRDC	Grains Research and Development Corporation
ISP	Internet Service Provider
NASAA	National Association for Sustainable Agriculture, Australia
NHT	Natural Heritage Trust
PBR	Plant Breeders Rights
PC	Personal computer
PIB	Peak Industry Body
QBC	Queensland Bushfood Cooperative
QDPI	Queensland Department of Primary Industries
RIRDC	Rural Industries Research and Development Corporation
R & D	Research and Development
RBF	Robins Bush Foods
SBA	Southern Bushfood Association
SGAP	Society for Growing Australian Native Plants
SVBA	Southern Vales Bushfood Association

# Executive Summary

Recent research by the Australian Native Bushfood Industry Council (ANBIC) and the Rural Industries Research and Development Corporation (RIRDC) identified information failure as a significant impediment to the continued growth of the Australian bushfood industry. RIRDC found information problems at all points in the bushfood production and marketing chain, observing that:

- Production was constrained by limited information to enable and ensure a quality product.
- Manufacturing/retailing was constrained by a lack of generic marketing, inconsistent marketing terminology, and minimal understanding of the uses of native bushfoods on the part of potential consumers.

This project was commissioned by RIRDC to design a suitable database strategy to address the industry's information needs.

The report provides:

- Review of key literature and information regarding the bushfood industry (section 2, with detailed information in Appendix I).
- Issues to be considered in developing a bushfood industry database (section 3).
- Consultation with the bushfood industry on a bushfood industry database (section 4).
- Synthesis of consultation findings into a user requirements specification (section 5).
- Design of the database from the user requirements specification (section 6).
- Implementation strategy for the database (section 7).
- Conclusions (section 8).
- References used in the report (section 9).

Appendices to the report contain:

- Review of information on bushfood (Appendix I).
- Individuals and organisations contacted for consultation (Appendix II).
- Questionnaire used for consulting with the bushfood industry on the bushfood industry database (Appendix III).
- Background information used in consulting with the bushfood industry on the bushfood industry database (Appendix IV).
- Summary of consultation process: a paper provided to respondents for any additional comments following the consultation process (Appendix V).

The findings of the study indicate the following conclusions:

- A single central database was not viable, because of lack of general support and little need for more information of a general nature.
- A system of several smaller databases, for the different specialist groups (or associations) within the industry, appears viable.

- Several small specialist databases serving the functions of specialist groups (or associations) are a more efficient solution to the industry's information problems than a single central database.
- A set of smaller specialist databases would help promote industry innovation and growth (even if some of the larger industry players did not become involved in such databases).
- What the specialist groups (or associations) need is not just a database, but an information management system that meets their specialist requirements. This information management system can be based upon the internet.
- An internet based set of smaller, specialist databases would be viable because of:
  - widespread support within growers/harvesters/processors; and
  - low maintenance costs, with each database being managed by its appropriate group (or association).
- These smaller, specialist databases can nevertheless be linked together under a top-level internet site, to provide an overall public face for the Australian bushfood industry. This site, potentially called the "Australian Bushfood Industry Database" could provide an overall structure, but at the same time allow a level of individuality for the different specialist databases.
- The top-level internet site, with links to the smaller, specialist databases, could most effectively be provided (and funded) by government.
- The smaller, specialist databases, would most effectively be provided (and funded) by the different specialist groups (or associations) that have information relevant to some aspect of the bushfood industry, and which wish to link to the top-level internet site.
- Groups (or associations) in the bushfood industry that are not yet ready to have such an internet presence can link to the top-level internet site at a later date.

# 1. Introduction

## 1.1 About the project

Research by the Australian Native Bushfood Industry Council (ANBIC) and the Rural Industries Research and Development Corporation (RIRDC) identified information failure as a significant impediment to the continued growth of the Australian bushfood industry. RIRDC (1997a and b) found information problems at all points in the bushfood production and marketing chain, observing that:

- Production was constrained by limited information to enable and ensure a quality product.
- Manufacturing/retailing was constrained by a lack of generic marketing, inconsistent marketing terminology, and minimal understanding of the uses of native bushfoods on the part of potential consumers.

This project was commissioned by RIRDC to design a suitable database strategy to address the industry's information needs.

Many in the industry have called for a national bushfood industry database to meet that need, but just what sort of database is required by industry? Do all sectors of the industry want a database? Is there general agreement on the form that it should take? What support by industry is needed for the long-term viability of a database, and is that support forthcoming from the industry? Finding the answer to these questions is a critical first step in designing and implementing a Bushfood Industry Database.

A database is about information, and there is a surprising amount of information available on bushfood (see Appendix I of this report for a bibliography and sources of bushfood information). The increase in information has occurred as the industry has grown. It is now almost 10 years since the first edition of the *Bushfood Handbook* was produced (Cherikoff and Isaacs, 1989). The handbook notes "In the last few years, Australian interest in the use of native foods in restaurants has grown prodigiously" (p.16). The 1993 reprint documents the continued rapid growth of this multifaceted industry, both in terms of references, and commercial availability of bushfoods.

As indicated in Appendix I, information on bushfoods can be obtained from a growing range of sources including:

- Books.
- Periodicals, fact sheets, research project and research papers.
- Internet sites and email addresses.
- Videos.
- Organisations involved in the bushfood industry:

- General.
- Nursery suppliers.
- Bushfood processors.
- Buyers of bushfoods.

It appears a contradiction that information deficiencies should exist alongside such a large and growing body of knowledge, distributed through a variety of channels to meet a range of needs. This suggests the information issues confronting the bushfood industry are complex and relate to how new information is generated and exchanged between industry members.

## 1.2 About Australian bushfood

Australian bushfood has become a topic of increasing interest over the last decade. However, the subject itself has had a much longer history, dating back tens of thousands of years. Australian bushfood (sometimes called bushtucker or native food) consists of a wide variety of Australian flora and fauna that can be used by humans as food or medicine (or in some cases as both). Consequently, the information on bushfood has been gradually built-up over thousands of years by native Australian communities in different parts of the country. This information covers such aspects as distribution, seasonality, harvesting, nutritional benefits, medicinal benefits and sustainable management.

The more recent interest in bushfood has been generated by the recognition that Australian bushfood provides:

- **Environmental benefits.** Agricultural practices which have used introduced species and practices have resulted in environmental degradation. It is generally assumed that the environmental degradation resulting from agriculture could be reduced if some introduced food species were replaced (partially or completely), by some native food species. This assumption is reasonably robust, because native species can be expected to be better adapted to growth under Australian conditions. Furthermore, the agricultural practices for growing and harvesting native species would probably be less intensive and once again result in less environmental degradation.
- **Nutritional and medicinal benefits.** Australian bushfood is becoming increasingly recognised as having a high nutritional value. This is also generally a valid assumption as bushfood contains high levels of vitamins and a wide range of essential minerals. For example Kakadu Plum has the highest vitamin C content of any fruit. These medicinal benefits have been well known by native Australians, and are now also becoming increasingly recognised by other users (Aboriginal Communities of the Northern Territory, 1993).
- **Social benefits.** The growing and harvesting of bushfood provides opportunities for employment in rural areas of Australia. Furthermore, bushfood growing and harvesting is a relatively labour intensive activity which is not readily suited to mechanisation. Consequently, a bushfood industry would generate significant employment opportunities in rural Australia, and help diversify the economic base of rural areas.

- **Cultural benefits.** A bushfood industry would result in an increased awareness of native Australian culture. It would also emphasise the wealth of knowledge that native Australian culture has about the landscape and about the ecology of the country.

### 1.3 About the Australian bushfood industry

Despite a long-lived and detailed information base, the Australian bushfood industry is relatively young, with a history of about 15 years. The commencement of an industry has been attributed to the restaurateurs Jean-Paul Brunteau and Jennifer Dowling who started to utilise bushfoods in their menus in the mid-1980s (RIRDC, 1997b). The concept of bushfood was further popularised by the “Bushtucker Man” TV programs.

Despite its relatively short history, and small size, the industry has a nation-wide geographical distribution. There are producers, processors, marketers, and researchers in all states and territories of the country.

Defining a boundary for an Australian bushfood industry is particularly difficult. A broad definition is any commercial activity associated with an Australian native plant species, although this excludes:

- those bushfood products not derived from plants;
- bush-plant products not used as food; and,
- non-commercial bushfood activity of any kind.

On the other hand, this definition includes industries such as the macadamia nut industry. In its infancy, the macadamia nut industry would have been a strong bushfood candidate, but is probably now best considered as a industry in its own right.

These boundary-drawing issues are important because this project is about developing a “bushfood industry” database. The database has the express purpose of helping the bushfood industry grow, so the database contents and stakeholders will depend on what is included in the definition of the bushfood industry.

The general definition provided above approximates the RIRDC bushfoods industry and appears broadly consistent with the definition used by various government departments of agriculture.

Further consideration of what is to be included in the bushfood industry is necessary for

- determining its size;
- determining the coverage of government assistance to the industry; and
- determining the limits of a bushfood industry database.

Firstly should value-added products based on bushfoods be included? Should the answer depend on where the value-adding is done? When wattleseed flour or mountain pepper is used in a large non-specialist city bakery, does the breadmaking constitute a bushfood

industry activity? Does the definition change if the wattleseed flavoured bread is made on location at a specialist bushfood restaurant? The issues can be resolved by considering the purpose of the definition and by taking a consensus of the producers themselves. The Australian Bureau of Statistics (ABS) has rules for measuring and defining industries. As for the bushfood industry database, perhaps the users can be determined on a self-select basis. The study team believes that all interested persons and organisations should be allowed to participate in a bushfood industry database. The reason is that they may share common interests, and face similar problems to the mainstream members of the industry, and can collectively and individually benefit from sharing experiences and information.

These definitional issues are by no means confined to the bushfood industry. They commonly occur in measuring and comparing industries. They are peculiar to those industries defined to include only a particular activity, and can be avoided if the industry is defined in terms of particular types of business establishments, ignoring the mix of activities the establishments engage in. For example, the tourism service industry is hard to value because it is difficult to distinguish between the services that hotels, restaurants, car hire companies, and banks supply to tourists and those they supply to local residents or businesses.

Despite the definitional difficulties discussed above, the industry size has been estimated at about 500 people on a full time basis, and an additional 500 on a part time basis (RIRDC, 1997a and b). However this may be an under-estimate as it does not fully account for:

- A large number of Aboriginal organisations which may have members employed through the Community Development Employment Program (CDEP).
- Some 500 restaurants which have incorporated bushfoods or bushfood ingredients into their menus.
- Seasonally employed bushfood harvesters.
- Research organisations and R & D corporations which are investigating the use of bushfoods.
- Other organisations with a peripheral interest in bushfoods.

The total turnover for the industry has been estimated to have a farm-gate value of \$14 million per annum (RIRDC, 1997a).

The study team considers the bushfood industry to include all persons and organisations that could contribute to or benefit from a bushfood industry database. This allows for some self selection on the part of persons and organisations, and suggests defining the bushfood industry in terms of those facing similar information needs.

## **1.4 Project purpose**

While some impediments to growth relate to industry structure (fragmentation, lack of scale, critical mass, etc), most relate to the market failing to adequately supply information needs.

A least six different forms of information failure in the bushfood industry have been identified:

- gaps in the knowledge base – for example on the toxicology of certain native food;
- uncertainty over intellectual and/or cultural property rights;
- high costs of locating quality information on the production, supply and use of bushfoods;
- poor communication between the various groups that together comprise the supply chain for the bushfood-related products, including two-way flows between researchers into bushfoods, and the users of the new information;
- labelling standards that are inadequate to differentiate between bushfoods according to how they are produced to meet different market and promotional needs; and,
- inadequate public understanding and acceptance of bushfoods and their unique qualities, suggesting a requirement for more widespread promotion by the industry.

A recent report by RIRDC (1997a) found information problems at all points in the bushfood production and marketing chain. The report observed that:

- Production was constrained by limited information to enable and ensure a quality product.
- Manufacturing/retailing was constrained by a lack of generic marketing, inconsistent marketing terminology, and minimal understanding of the uses of native bushfoods on the part of potential consumers.

Better information may promote a climate more conducive to increased investment in bushfood production. Producers may be more willing to invest if they can identify a greater range of potential buyers. Similarly, bushfood buyers may be more willing to increase their purchase of bushfoods, if they can see a reliable supply of good quality produce.

## **1.5 The project's potential benefits**

The database has the potential to contribute to the objectives for the bushfood industry, as set down in RIRDC (1997a), which contains an R & D plan for the Australian bushfood industry.

In particular, the project would explore how a database could increase collective awareness both within and outside the industry on how research and promotion in toxicology, food standards and new markets could expand demand for Australian bushfood. By specifying the relationship of the database to complementary information networks (both existing and planned), the scoping study could minimise unnecessary duplication and redundancy.

Agreement within the industry at the database design phase would alleviate problems in public/private ownership of information and may minimise free-rider problems by generating a culture of trust and mutual benefit.

Furthermore, by developing human capital, a bushfood industry database could also:

- directly contribute to the economy by its catalytic impact on economic activity;
- preserve and enhance unique Australian environmental/heritage values; and
- lead to a more socially desirable and sustainable distribution of income and activity.

The blueprint for the development of the database, including costs, would assist policy makers to ensure these expected public benefits do exceed the public outlays expended in facilitating the database implementation.

## 1.6 Report structure

Subsequent chapters of this report address the following:

- Review of key literature and information regarding the bushfood industry (section 2, with detailed information in Appendix I).
- Issues to be considered in developing a bushfood industry database (section 3).
- Consultation with the bushfood industry on a bushfood industry database (section 4).
- Synthesis of consultation findings into a user requirements specification (section 5).
- Design of the database from the user requirements specification (section 6).
- Implementation strategy for the database (section 7).
- Conclusions (section 8).
- References used in the report (section 9).

Appendices to the report contain:

- Review of information on bushfood (Appendix I).
- Individuals and organisations contacted for consultation (Appendix II).
- Questionnaire used for consulting with the bushfood industry on the bushfood industry database (Appendix III).
- Background information used in consulting with the bushfood industry on the bushfood industry database (Appendix IV).
- Summary of consultation process: a paper provided to respondents for any additional comments following the consultation process (Appendix V).

## **2. Review of key literature and information regarding the bushfood industry**

This section of the report describes the:

- Methodology used to identify and review key literature and information regarding the bushfood industry.
- Results of the review.

### **2.1 Methodology**

The methodology used to identify key literature regarding the bushfood industry focused on:

- Printed information sources (such as books, periodicals, fact sheets, research projects, and research papers).
- Electronic information sources (such as internet sites, email addresses and videos).
- Organisations involved in the bushfood industry.

The methodology to identify key information regarding the bushfood industry used:

- Results of the above mentioned literature review;
- Knowledge of the bushfood industry by the study team;
- Feedback from key personnel within RIRDC; and
- Feedback from the bushfood industry.

### **2.2 Results**

The process revealed an extensive list of information, both in printed and in electronic form. In addition, the process also generated an extensive list of organisations that have an involvement with, or information on bushfood. These lists are provided in Appendix I.

To help readers find the information relevant to their need, comments are provided on some of the literature, and key references are marked by an asterisk.

Appendix I also provides lists of organisations involved in the bushfood industry. It should be noted that there is duplication in these lists as the activities of some

organisations span several roles. Again, an asterisk is used to show the reader the more important players in each of the sectors.

The result of the review (in Appendix I) have been compiled under the following broad categories:

- Books (Appendix A.I.1).
- Periodicals, fact sheets, research projects and research papers (Appendix A.I.2).
- Internet sites and email addresses (Appendix A.I.3).
- Videos (Appendix A.I.4).
- Organisations involved in the bushfood industry (Appendix A.I.5).
  - General.
  - Nursery suppliers.
  - Bushfood processors.
  - Buyers of bushfoods.

### **3. Issues to be considered in developing a bushfood industry database**

Issues to be considered in developing a bushfood industry database were discussed with individuals and organisations in the industry (indicated in Appendix II). These issues were developed into a questionnaire which is described below, and shown in Appendix III. Background information was also provided with the questionnaire and this is indicated in Appendix IV.

Most respondents completed the questionnaire during a telephone discussion with a member of the study team. However, in some instances other methods were used such as face-to-face discussions. Following the consultation process, the study team produced a general summary of the results. This summary (indicated in Appendix V), was provided to individuals and organisations previously consulted (indicated in Appendix II), for any additional comments.

The consultation process is discussed in additional detail in section 4.

Nine issues central to the design of an effective bushfood industry database are discussed below, with the questionnaire items also indicated in Appendix III.

#### **3.1 Do information deficiencies impede bushfood industry growth?**

##### **Background on the issue**

Not all industry participants may see the market for information on bushfoods as deficient (a range of bushfood information is available – see Appendix I). And those that do, may not believe that a bushfood industry database would help. If this view (i.e. that a bushfood industry database would not be useful) is strongly held, this study must expose it and challenge its basis. If the view is soundly based, then the study must accept and report it.

##### **The question for the industry**

Do you think you could benefit from more comprehensive information (such as a database) on the Australian bushfood industry?

##### **Analysis of industry response**

A “no” response can be interpreted in various ways, e.g., there are no significant industry information deficiencies, or while there may be such deficiencies, industry may perceive a failure to achieve higher growth to be due to factors other than information deficiencies, and thus a bushfood industry database would not benefit the industry.

A key issue is the nature of the information deficiency that is retarding the industry growth. Important information may be missing, may be available but difficult to find, or may be easily found but costly to use. Know-how may be costly to use because those that possess it may consider it important to their business viability, and not be prepared to sell it cheaply. However it only takes one of the organisations that have the know-how to publish it for that information to be readily available to all.

If the identified information deficiency is for tacit know-how, rather than codified knowledge, then publishing in a bushfood industry database may be a less effective means to communicate than “face-to-face” discussion, and may not reduce all the costs of using the information.

## 3.2 Can deficiencies be addressing by some form of database?

### Background on the issue

A database in its broadest form is a collection of information organised so users can extract the information quickly and efficiently. The form of storage may differ between databases (e.g. electronic or paper form), as can the content, structure, search methods, and means of distribution. The electronic database is now the most common response to information deficiency. However, information deficiency can be overcome by a range of options.

### The question for the industry

Is a database format a good way of addressing the industry’s information needs?

Yes       No       Don’t know

Comments: \_\_\_\_\_

### Analysis of industry response

The question is based on an ideal database, ignoring issues of cost, form, centralised or distributed storage, and private or collective ownership. These latter issues, which can certainly influence the viability of the database solution, are addressed in later questions.

A “no” answer means that the recipient does not see any organised/searchable form of information as of benefit. Comments provided with a “no” response may point to other problems hindering industry growth.

The established industry organisations may believe that releasing information to others would benefit others, and the industry as a whole, but would lose them profits because of

a loss of competitive advantage. The existence and validity of such a view should be exposed to scrutiny.

### 3.3 Which industry segments would benefit most from a database?

#### Background on the issue

Because the bushfood industry is so diverse, ranging from horticultural suppliers and growers to bushfood gatherers, food processors and restaurants, its informational requirements are very wide. They cover agriculture, cuisine, plant identification, investment planning, etc. Given this, it would be unlikely if the information needed by one of the industry segments were critical to another.

#### The question for the industry

Which group in the bushfood industry do you think is the likely user for such a database?

Please tick as many as you think appropriate.

- growers, producers and harvesters.
- processors and manufacturers.
- wholesalers.
- retailers including restaurants.
- potential investors (in growing, manufacturing, wholesale/retailing).
- researchers.
- government agencies.
- general public.
- other.

Please expand your comment if you wish.

---

#### Analysis of industry response

An indication from a survey participant that its own industry segment is a likely user carries significant weight. Subsequent questions explore the extent of the benefit to such users in terms of their willingness to contribute to the cost.

Particular users may be associated with particular types of information deficiency. For example, a questionnaire respondent that identifies consumers as a likely user group may believe that the culinary or nutritional value of bushfoods is not being adequately promoted, and may want the bushfood industry database to fill this role.

### 3.4 Database type – encyclopedia or directory?

#### Background on the issue

The two main types of databases are:

- Encyclopedia-format, which contains the required information.
- Directory-format, which contains information on where to obtain the required information (e.g. yellow pages directories). These are also often referred to as meta-databases.

The internet can be considered to combine a meta-database and database, as users can follow hyperlinks to find information. The issue is which database format best addresses the industry's needs.

The industry participant may wish to distinguish between their needs and the needs of the industry as a whole. By using a rating system, participants can indicate:

- whether their own needs for a information database have a higher (or lower) priority than the perceived industry need;
- whether the two database formats differ in importance; and,
- how important is each database, to themselves and to the industry.

#### The question for the industry

What type of information do you think would be of most use to you and the user group(s) you identified above.

**A** A list of information sources for different industry segments (like a specialised yellow pages).

Individual

Please rate 1 - 5

Industry

1 = not important  
3 = moderately important  
5 = very important

**OR**

**B** Technical information on different industry activities (like an encyclopedia containing information on cultivation, harvesting, processing, manufacture, preparation and consumption).

Individual

Industry

Please rate 1 - 5      1 = not important  
   3 = moderately important  
   5 = very important

### **Analysis of industry response**

Participants who believe the industry's information needs are relatively focused and well defined, are likely to give top ranking to the encyclopedia option. Those who believe the information is relatively dispersed and difficult to define, may give the top ranking to the directory yellow pages option.

Survey participants might be expected to rank their private needs higher than the public needs. For example, a grower wishing to reduce costs or increase quality of information on new cultivars may rate his importance for such a database as at least as high if not higher than the industry's. Growers that rank their own needs for the database lower than the industry's need might be behaving strategically. They may think that their response may influence outcomes. A low benefit may imply a low contribution to a bushfood industry database.

A bushfood industry database may contain information of industry inputs or on industry products. Questionnaire respondents may rate an input type of database differently to a product type. For example, the product type of database might be seen as a substitute for some of their own advertising. Even if the database does not increase their company's share of the market (this may depend on how suppliers differentiate themselves from their competitors), it is likely to increase the industry's sales and hence the company's sales.

## **3.5 Which of the industry's activities will benefit most from the proposed database solution?**

### **Background on the issue**

The database can be expected to increase the industry's sales and profits, enhancing its supply capability and expanding demand for its products.

However, the impact is unlikely to be uniform across the industry sectors. The increase in bushfood sales might be supplied by one sector and not others, depending in part on the content and form of the database.

A large expansion in output of one of the supplying sectors does not imply larger profits to that sector. That sector may not be able to obtain all the inputs it needs without significantly bidding up the price for the inputs in short supply. Those sectors in the

supply chain that have the most limited ability to respond quickly to demand increase may experience the largest increase in price for their products. This is the economic system at work, providing the necessary price increases in a slow-to-respond sector to induce a further investment – it does not mean that the long-term rate of return to that sector's assets will increase.

Nevertheless, depending on inter-industry relationships and on differences in the ability of firms to respond, the distribution of benefits may not be uniform. Moreover it is unlikely that the industry itself will capture all the benefit. The benefit of an increase in demand stimulated by better provision of information to consumers will benefit both the consumers and suppliers. Similarly some of the benefit of lower industry costs that follow the better information will go to the consumers.

Survey respondents cannot be expected to be able to predict accurately the final outcome of an enhanced information system after the economic adjustments are played out. If accurate predictions were necessary, (and that is unlikely), sophisticated econometric modelling would be required.

Firms that are successful participants in the industry may be expected to know how their sector is affected by other sectors, and where the information impediments to overall growth are most severe. This type of information would give some feel to where the immediate impacts of a particular database solution would be felt. Since it would be unusual for economic adjustment to convert a short-term gain into a long-term loss, the short-term outlook is relevant to longer-term predictions.

### **The question for the industry**

Please rank in order of importance the activities of the industry which would benefit from such a database.

- cultivation and production
- harvesting
- processing
- manufacture
- preparation
- consumption
- other (please specify: e.g. research and development, specialised equipment, etc.).

Comments: \_\_\_\_\_

### **Analysis of industry response**

Clearly the response to this question depends on the particular format and content of the database, and so cannot be analysed in isolation from the responses to the other questions. When combined, the responses can be analysed to indicate likely differences between the database options.

Importantly, the consultation is not designed to indicate the ultimate impact of each database option. Instead the consultation seeks information on how the immediate impacts might differ, and insights into how those impacts might be modified by supply and demand relations between industry sectors, their suppliers, and customers.

## **3.6 What forms of database would be most useful?**

### **Background on the issue**

As sources of information, databases can exist in a variety of forms (paper, electronic, etc). However, generally economic considerations force publishers to select one or two of the available options, with a trend towards internet publishing and CD-ROM as the preferred distribution media.

### **The question for the industry**

What form would you find most useful for such a database? - (select more than one if desired).

- Printed as a bound book.
- Printed as a loose-leaf folder.
- Printed as a series in a magazine.
- Electronic on disk.
- Electronic on CD-ROM.
- Electronic on the internet.
- Other (please specify).

### **Analysis of industry response**

A particular focus is what form of database would be preferred by survey respondents for their own use, as seekers or promoters of product information. This information leads to issues of financing - costs of different database formats differ. However, at this stage, the issue for the respondent is not to determine which of different options is best - some may be ruled out as not meeting the needs of particular user groups. The choice between viable formats is to be determined on the bases of benefit to:

- The industry participants and sectors - here a willingness to pay criterion can be used to assess the benefit.
- The nation as a whole, including benefits that cannot be captured by bushfood producers.

## 3.7 Database viability and willingness to pay

### Background on the issue

If the industry believes that a database would contribute to a growth in industry revenue and profit, then it may be prepared collectively to return some of its income back to cover ongoing database running costs.

Even if most industry participants believe a database would make a positive contribution to industry growth, and believe that the industry should collectively contribute to a database, there may well be disagreement as to how those costs should be shared, between industry sectors and between individual participants.

The decision to establish a bushfood industry database may critically depend on industry preparedness to contribute to costs. And these costs, along with the benefits, depend on the database option chosen.

In consequence, this is a determining issue - responses to this question will determine the viability of database options.

### The question for the industry

Would you be willing to use and pay for all or part of such a database?

No

Yes (for part or all of such a database)

### Analysis of industry response

This gives benchmark indications of the level of support available for a bushfood industry database.

Industry participants are not expected to behave strategically. Because understanding their contribution might reduce the likelihood of a database going ahead, while overstating it, although favouring establishment, would not yield a sustainable database. Because the database option represents a collective approach to market failure in information, collective agreement between industry participants on its funding is critical to its success. The industry contributions may enable information costs of the industry participants to be reduced for the same level of benefit, or may supplement their own efforts, thereby increasing overall demand for the industry's output.

In the first instance, providing industry participants who do not contribute to the database costs can be excluded from its benefits, each member will contribute only to the benefits they can capture. The level of database service is likely to be small, possibly non-viable.

Industry participants are essentially voting with their hip pockets for a market solution. The downside is that if the total level of information-related activity does not increase as a result of the database, any government support for it will have simply replaced privately funded resources. In other words, the database would not contribute to increased industry sales, although it would enhance profits through taxpayer funded subsidy. The net result would be no public benefit from government support for the database. If government support were conditional on the expectation of public benefit, then it would not be forthcoming.

The size of the contribution is then more properly an issue of how much industry is prepared to support an increase in information use. However the benefits from increased information use are likely to vary over the industry, depending on factors such as company size, industry sector, supply response, level of competition, etc. A consensus on an efficient and equitable method for financing ongoing bushfood industry database costs, although difficult to obtain, is almost a prerequisite for success.

A positive response for a particular database format from a particular industry segment would suggest a public benefit, while a negative response towards a contribution might indicate that a public benefit would be low and/or uncertain.

### 3.8 Funding possibilities?

#### Background on the issue

While the go-ahead on a database option may depend, *inter alia*, on a demonstration of public benefit indicated by a willingness of users to contribute to its costs, the format of the database solution may depend on the form of the payment. A one-off contribution would suggest one-off benefits, and a static book/CD-ROM type of database medium.

Subscription-based contributions would suggest ongoing benefits and a dynamic solution, with continuing service provided possibly using the internet.

#### The question for the industry

If the answer were 'yes' to the above question, then by what means would you be willing to pay?

One-off basis (e.g. for a bound book), and if so, then what level of payment would you be willing to pay? You may provide a range or a number for \$ \_\_\_\_\_

**OR**

Subscription basis, and if so, then what level of payment would you be willing to pay per month? You may provide a range or a number for \$ \_\_\_\_\_

**OR**

Some other basis (e.g. per use for a specific part of the information).

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### **Analysis of industry response**

Positive responses would suggest some commitment by industry to a database solution. The choice of format, taken together with the level of contribution, would narrow down the viable options.

## **3.9 Other issues**

### **Background on the issue**

Some industry participants may see other issues as more important than the ones addressed above. They may want the questionnaire (and thus the database) to address a number of other issues, such as:

- Highlight gaps in the knowledge base – for example on the toxicology of certain native food, and so improve effectiveness of R&D processes.
- Help reduce uncertainty over intellectual and/or cultural property rights, so freeing up the market for information and information-based services.
- Reduce high costs of locating quality information on the production, supply and use of bushfood.
- Improve communication between the various groups that comprise the supply chains for the various bushfood-related products, that is, improving two-way flows between knowledge providers and users.
- Assist in development of standards to differentiate between bush foods according to how they are produced (collected, improved cultivar plantation, NASAA-certified farm, etc.) to meet different market and promotional needs.

The questionnaire provides the opportunity for the bushfood industry to raise these and any other important issues not explicitly covered above.

### **The question for the industry**

Are there other comments that you would like to make, or that this questionnaire needs to address?

Comments: \_\_\_\_\_

### **Analysis of industry response**

This question addresses the sufficiency and accuracy of the issue list. Exploring the industry response to this issue is therefore an important element of the consultation process. In addition, this question for the industry may shed detail on specific problems facing individual firms, and provide detailed information into the way the industry works.

# 4. Consultation with the bushfood industry on a bushfood industry database

## 4.1 Background

### Rationale for consultation

Information is vital to industry prosperity and growth in a changing environment. Its importance increases when:

- The established communication channels and information flows become less able to meet changing needs for information by industry participants.
- There are large potential benefits to further industry investment, but such investment is hindered by lack of detail on financial and other aspects.
- Industry is composed of diverse groups, each being reliant on innovation and growth in other groups, but having a limited understanding of the information impediments to the other groups' growth.

However, the circumstances that make information flows so critical to industry's ability to take advantage of opportunities are those that limit the ability of industry to fill the gaps. The cost and benefits of investing in information provision are often uncertain to individual suppliers. The reason is that it can be difficult to charge users for information, and users are not only able to free-ride on information purchased by others, but also have an economic incentive to do so.

In consequence, the growth of young fragmented industries such as the bushfood industry may be hindered by market failure in information. Industry participants may not be aware of the information that is privately supplied, and that information may be less in range, content, and quality than what is considered efficient. In such cases, society can get a net benefit from government action to assist the filling of any critical information gaps.

Nevertheless, such net benefits require that tax-funded government support be well directed at critical areas. It is important that any information support address deficiencies identified by the industry, and that the industry takes on-going responsibility for the support of new information channels.

### The strategy of the consultation process

Effective consultation requires a two-way flow of information. By determining the response of industry participants to perceived information shortcomings, and determining their reactions to suggested solutions, it is possible both to identify the broad areas that

the industry regards as deficient, and to drill-down in these areas so as to determine the form of efficient solutions.

The process followed was then to:

- with the help of a few key industry representatives, make a preliminary assessment of the industry, the potential and existing users and suppliers of information (the potential stakeholders in a bushfood database), and the perceived deficiencies in information exchange;
- obtain background information on the range of possible solutions to information deficiencies;
- develop a questionnaire to give structure to the consultations, and to allow a standardised response amenable to analysis; and
- use this framework to explore information deficiencies and solutions with the industry.

This consultation process used face-to-face (where possible) or telephone discussions. As such, the range had to be restricted - the survey coverage was not determined by a random statistical selection from the total population. This would have been difficult given the lack of a definitive population. Respondents were selected from a wide range of areas and locations within the industry to ensure that the views of most sectors were represented.

### **The consultation process**

The consultation process used a questionnaire (Appendix III) and project background paper (Appendix IV) to provide structure to the consultation. Some industry participants were sent a copy of the questionnaire and asked to complete and return it to the study team. Other participants provided verbal responses that were used by the study team to complete the questionnaire.

The questionnaire was designed to provide a structured approach to solution development. First, issues such as the need were addressed, then depending on the response, different solutions were considered, and their relative advantages to different industry segments explored. In this, the industry participants were asked both about their private benefit, and the benefits to the industry as a whole. Lastly, issues of financial viability were explored.

The questionnaire structure does not imply a formal or linear solution process as the two-way flow of information needed to obtain informed responses recognises the interdependencies between the issues in the questionnaire.

## **4.2 Information exchange**

### **Background on the organisations consulted**

The project required a wide-ranging consultation process with members of the bushfood industry. Being able to document and interpret the results of this consultation process was an important issue in developing a bushfood industry database. Consequently, it was

necessary to obtain some general information on each respondent. This information consisted of:

- Contact details. This was important in case the study team needed to recontact the respondent at some subsequent phase of the consultation process (e.g. to interpret a particular response, or to request additional information on a particular question). If the respondent wished to provide a confidential response, then the contact details were retained by the study team (and not made part of the publicly available documentation on the project).
- Nature and extent of respondents involvement in the bushfood industry. This information was important in order to allow the study team to place responses into a context, or to determine if different sections of the bushfood industry had different preferences for a database.
- Information sources on the bushfood industry currently used by the respondent. This information was important in order to understand the main information sources (if any) currently used by the bushfood industry, as any proposals for a database had to consider the current information use patterns of the potential database users.

### **Who was consulted**

The study team aimed to consult with the main industry players, and a selection of other stakeholders. The **larger industry players** included Vic Cherikoff (BTSA), Juleigh Robins (Robins Bush Foods), Andrew Beale of (ANPI) and Andrew Fielke (Red Ochre), Jean-Paul Brunteau (Ribberies Restaurant) and Peter Hardwick (Australian Ethnobotanical Foundation).

We endeavoured to contact representatives from all the **grower/harvester/processor** associations such as Arid Land Growers Association (ALGA), Australian Rainforest Bushfood Industry Association (ARBIA), Australian Quandong Industry Association (AQIA), Southern Bushfood Association (SBA), Southern Vales Bushfood Association (SVBA), Queensland Bushfood Cooperative (QBC), Central Lands Council (CLC), Aboriginal Cooperatives (Coen Aboriginal Cooperative) and growers (both those that are members of associations, and those that, for whatever reason, choose not to join an association).

We contacted public and private organisations that **supply services** to the industry. The public bodies included CSIRO, Plant Breeders Rights (PBR) and some State Government Departments of Agriculture. Private Organisations included native plant nurseries, native seed providers, Greening Australia (GA), the Society for Growing Australian Native Plants (SGAP) and some restaurants. We also contacted the *Australian Bushfoods* magazine, and obtained information from a selection of Australian bushfood websites.

In general, the consultation relied heavily on identifying and discussing the issues with the most progressive and knowledgeable of the industry, rather than a comprehensive scientific survey of all industry participants. Our experience suggests that adding more respondents to the consultation process would not necessarily lead to a better database specification.

## Form of the consultation

The framework for the consultation was based on the nine issues described in section 3. A questionnaire that followed that structure was sent to many, but not all the organisations consulted. In particular, it was not sent to those in the third group indicated below (i.e. the organisations that provide services to the bushfood industry, unless they particularly requested it). This was because, as outsiders to the industry, they did not want to participate in a database. Instead, their interest was in the potential to link their own internet database to a bushfood internet database (if such an option was to eventuate).

The discussions with the industry covered the nine identified issues, but generally tried to drill deeper into areas critical to solving particular information needs. The detail of the discussion depended on the particular role played by the organisation, and its interest in the industry. Organisations differ in the benefits they may derive from an Australian bushfood industry database, and their willingness and ability to contribute to one. Three main stakeholder groups were identified.

- The **grower/harvester/processor** members (i.e. the bushfood suppliers) require that the database supply their need for critical information. A successful database will increase returns to supplier members using the database. These members appear willing to contribute to on-going running costs. Other specialist bushfood **processors** are sometimes growers themselves, or alternatively have close links with them. They also have a direct interest in a bushfood industry database.
- Some of the **larger industry players** may need to assess how a bushfood industry database would impinge on their operations. They have established their own information chains, and are not pressing for a bushfood industry database. For them, the impact of a bushfood industry database is uncertain. In fact, the potential risks (an inappropriate form could damage not only the emerging bushfood market but also their business) could outweigh any benefits. However, if the database took the form of an appropriately designed, interactive, dynamic internet site, then some of these players might see two-way hyperlinks as mutually beneficial.
- A wide range of **service providers** exchange information with the bushfood industry. These organisations include RIRDC, departments of agriculture, various universities, CSIRO, Plant Breeder Rights at the Commonwealth Department of Agriculture, Fisheries and Forestry, botanic gardens and various native nurseries, as well as Australian native seed suppliers, food processors and the support organisations for the traditional land owners. Many of these organisations have adopted computer networking technologies for both internal and external information exchange, and are increasingly moving towards internet based strategies. For example, the fastest way to get information on Plant Breeders Rights is to visit the internet site, and possibly lodge an application for any service/information required. These service organisations would certainly support a bushfood industry database with hyperlinks, enabling fast two-way provision of information. However, they usually have a large

range of clients to support, and so would not generally provide special support services just to the bushfood industry.

Of the service providers, the specialist nurseries and researchers have perhaps the closest links to the industry. These would be included as contributors to a bushfood industry database when they also grow, harvest or add value to bushfoods.

Within each of the above groups, there is a further diversity of interest in the database. There is also a limited ability to use newer database technologies (for example, many growers/harvesters/processors do not have ready access to internet technologies).

The consultation was structured to explore the needs of these different groups.

### **4.3 Feedback loops**

Following consultations with individuals and organisations in the bushfood industry, the study team produced a general summary of the results. This summary (indicated in Appendix V), was provided to members of the industry (indicated in Appendix II). Industry representatives not contacted in the first round of consultations were phoned, and information sought as to the reliability of the findings.

Findings were subsequently revised to take account of the feedback. Further discussions were held with some key players, and analysed against validation and consistency criteria.

### **4.4 Validation and consistency checking**

Most of the checking was of a basic kind. It included checking that views held by individuals about the industry were consistent with other views from the industry. In particular, it involved assessing which sectors of the industry revealed an interest in participating in a database so that activities supported by the database would align with the activities required by the organisations using the database.

The study team also checked whether the information that members would like on a database could be obtained. Problems with populating a database include knowledge gaps, commercial-in-confidence information, as well as high data costs.

A critical check was that members' requests for database functionality:

- Would not cause existing or proposed information services to be duplicated. Existing services sometimes overlooked by industry members included the Australian New Crops Newsletter and the *Australian Bushfoods* magazine.
- Did not overlook important roles because an unnecessarily narrow view is taken of a database role. For example, until prompted, some industry participants overlooked the promotion potential of a bushfood industry database.
- Was consistent with current models of industry and innovation.

### **Interest in the process**

The degree of interest in a bushfood industry database varied widely between the three stakeholder groups.

The **larger industry players** were not interested. This was put down to two factors:

- They believed that they had access to all publicly available information that a database could provide, and had the systems in place to update their information when required; and,
- The sale of their know-how to those wishing to “buy” information from them would either not generate a profit, or else would be less profitable than the business profits generated by its use if kept a trade secret or business secret.

**Service organisations** were generally keen to link up with a viable bushfood industry group but through the internet. Essentially these bodies make extensive use of the internet for information dissemination and promotion, and could arrange for internet hyperlinks between their own internet site, and a bushfood industry internet site (if such a site eventuated).

**Growers/harvesters/processors** were those most interested in the database, but sometimes overlooked either the availability of the information they sought, or some of the database’s potential. In general, they wanted information from a database, but did not want to provide it to help establish a database. Most, but not all, were members of associations. Their **associations** generally provide a series of database functions to their members. Many are already moving towards an internet site, but cannot do away with paper-based and voice based information services, as many of the members are not, as yet, computer literate.

# 5. Synthesis of consultation findings into a user requirements specification

## 5.1 Threshold issues

Before examining detailed user requirements, three threshold issues were considered. These were whether:

- a lack of information was hindering industry growth;
- a database would help; and,
- a database would be viable, that is, could user contributions and any sales revenue cover running costs, after establishment.

These threshold issues are discussed in turn below.

### **Is a lack of information hindering industry growth?**

All members of the bushfood industry agreed that information deficiencies are hindering industry growth - growers were uncertain not only on the availability of new types of bushfood and what they might offer, but also on the risks of further investment in the dozen or so bushfoods that have been commercialised. Firstly, they wanted information on aggregate supply and demand, present and forecast. Secondly, they wanted market intelligence, that is, information on what competitors were doing.

### **Would a database help?**

Despite this need for information, many suppliers, when questioned, were uncertain as to whether the information deficiencies could be easily met by a database. For example, some bushfood growers/harvesters/processors want price information - they would not want to increase investment without it. However, while there are many (typically-small) bushfood suppliers, there are few buyers. The buyers do not publicise prices partly because of competitive pressures. Other commercial information is also tightly held. Therefore many in the industry doubt whether useful industry-based information on price, production, or sales can be obtained for the database.

Growers in associations could pool their own information on price, area planted and, sales values, to get averages for their association. If appropriately organised, this pooling could preserve confidentiality of individual returns, while allowing group statistics to be shared between the members. This requires cohesion and trust between growers of the same bushfood, and such trust is not always present.

Another problem was that practical “how to” type information on commercial practices for bushfood was limited - and those with such information were unwilling to share it without some form of recompense. If such information were distributed in a publicly available database, it would immediately be freely available to all. In consequence, those with the know-how, especially for newer bushfood varieties, may be unwilling to contribute it to the bushfood industry database.

The requirement for some form of recompense for hard-earned know-how favours the directory (yellow pages) form of database over the encyclopedia form. The directory listings would allow information providers and information seekers to find each other, and hopefully agree on conditions for information exchange. Importantly, a bushfood industry database could contain both encyclopedia and directory type of information - the directory information would complement the publication of useful fact sheets containing publicly available information for new growers.

The minimum reward for discovering/revealing new or improved bushfoods, or better and/or lower cost techniques for producing them is recognition and acknowledgment. Successful bushfood innovators/pioneers may choose to capitalise on their work by using it to get ahead of competitors and be rewarded commercially by larger market share and/or profit. Alternatively if they choose to publish the findings of their experience, experimentation and/or research, then they would probably expect recognition. If there is no reward to successful bushfood innovators, then the engine of innovation, especially critical to growth in emerging industries, will grind to a halt.

As described later, the internet is the easiest way for computer literates to publish - the individual or organisation publishing information that is not already in the public arena can add their name, date, and copyright claim to the internet article. Charges can be levied by restricting access with passwords, or with a user-pays download.

While the incentive to innovate must be there, too much secrecy can be unnecessarily harmful to individuals and groups. The harm occurs when secrecy prevents a group of growers from knowing that each of them is guarding the same information in the mistaken belief that the others do not have it. A win-win position occurs if the group can establish mutually-beneficial terms for research and knowledge exchange.

### **Would a database be viable?**

While government might be expected to fund the establishment of the database, it would be on the basis that the industry contributes to ongoing costs. Thus database viability depends on finding a format that is not only useful to much of the industry, but that also receives widespread industry support.

Also at issue is who would take responsibility for the database management. This might be a task for a peak industry body (PIB), providing it has strong industry-wide support. Other alternatives could involve amalgamating with an existing internet site to reduce costs of information distribution - while this option may reduce costs, there may be disagreement as to an appropriate site, and how the site should be managed.

Through the initial and feedback consultation the study team established that grower/harvester/processor associations already provide information services to members. Many are now considering expanding those services. These serve as a base on which to build specialist bushfood industry databases.

## **5.2 The user group for a bushfood industry database**

Better information exchange would benefit most sectors of the bushfood industry. In fact it is critical for stable growth - the immaturity and thinness of the bushfood market admits the possibility that demand could outstrip supply or vice versa, both with undesirable consequences for growth.

Unstable growth may result if investment in plantations is not balanced by marketing of finished product. One industry spokesperson pointed to the difficulty in planning for growth in the absence of official data on the industry structure. This may represent one of the ways governments can contribute to sustainable growth of the bushfood industry. Moreover, coordination of demand and supply probably needs the authority and influence of government via its various research and extension services, particularly those related to agriculture and land use. Growers neither have the necessary information, nor the ability to influence a collectively optimal outcome.

The representatives consulted suggested that all organisations and individuals with an interest in bushfood would benefit from a bushfood industry database. These include consumers, tourists, potential growers, restaurants interested in enhancing their menus, wholesalers, and exporters. However, of the beneficiaries, only the grower/harvester/processor groups would consider any financial contributions to support the ongoing costs of the database. Many of the larger industry players have their own private sources of supply, and can, if desired, supplement them with publicly available directories (i.e. Telecom's yellow pages – available on CD-ROM for computer users, or other information sources, such as the *Australian Bushfoods* magazine or the *Land* magazine).

The users of the database would be the growers/harvesters/processors. The large industry players appear to be neither wanting or needing a database.

## **5.3 Matching database functions to industry requirements**

### **Potential database functions**

If designed to operate as a market in which bushfood information was traded or otherwise exchanged, a bushfood industry database could address several types of information

problems. All these problems were identified during the consultation and are mentioned below in order of frequency:

- *High search costs for know-how and tacit information especially as it relates to a particular region or species.* For example, the database could take the form of a loose-leaved encyclopedia, with information contributors providing update sheets on a periodic basis to database subscribers. Such data would probably augment and complement that presently published. Alternatively, rather than containing the needed information, the database instead could contain references to the locations and sources of the needed information. Of course, these sources could be private suppliers. The referenced sources would include both public and private suppliers of the information.
- *More research funding and distribution of findings to fill gaps in the knowledge base* - a database would not provide the missing information, but would highlight the gaps and facilitate collective solutions to developing that knowledge.
- *Helping buyers find sellers and vice versa by improving communication channels* - When established, the organisational infrastructure supporting the database would enable cost efficient information exchange, possibly replacing present methods, and so assist in collective agreement both within and between the various diverse groups that comprise the bushfood industry.
- *Promoting the industry by presenting a professional public face for the industry, and increasing public awareness and exposure to bushfood.* Bushfoods would be promoted:
  - to the Australian public,
  - to overseas consumers,
  - to restaurant trade,
  - overseas (major high value-adding sectors), and
  - to other sectors (e.g. education, tourism).
- *Reducing uncertainty over rights* - a database would not provide missing framework agreements or legislation, but would highlight the nature of the gaps, and provide a focus for collective solutions to them.
- *Implementing standards to exploit different demand structures* - to differentiate between bushfoods according to how they are produced (collected, improved cultivar plantation, NASAA-certified farm, etc) to meet different market and promotional needs.

### **5.3.1 Industry requirements**

Information on plant-growing know-how was the use most frequently raised for the bushfood industry database during the consultation.

More research was also seen as critical. The role of an information management process is to promote research exchange, help highlight research gaps, and help determine funding opportunities. However, plant research is not the central role for the bushfood industry database, and industry representatives raising this need did not see the database as making a significant contribution to it. On the other hand, there was a strong feeling

that improved communication between the research, production, and marketing sectors of the industry was very important.

Some growers contacted thought that more ready access to existing government and private research would also assist. Limited information of this type is already available on government internet sites and can be distributed through various channels to present suppliers (and potential entrants).

## 5.4 Conclusion

Bushfood growers/harvesters/processors see a need for a bushfood industry database, but the information they wish to obtain from the database is generally specialist in nature, and generally not published. They need an information management **process**, rather than a database. And each of the specialist grower/harvester/processor groups need their own information management process, and would take ownership responsibility for it, if assisted with the appropriate specialist information technology tools.

A specialist bushfood industry internet site and supporting database would provide the primary tools for the specialist information management process. It is expected that the specialist grower/harvester/processor bodies would support such an internet oriented database process.

## **6. Design of the database from the user requirements specification**

The user requirement analysis exposed a need on the part of the different bushfood growers/harvesters/processors for an information management process. Each specialist association would be responsible for its own specialist information management. To manage the process most efficiently, the associations need computer-based technology. In addition, it is recommended that the information management process use a database (or databases) located on the internet.

Since the database is merely the tool that enables an efficient management process, the primary focus of the design specification must be the information process, not the database.

The user requirement specification for an information management process is detailed below.

### **6.1 Specifying the information management process requirements**

#### **6.1.1 The design basis**

The primary objectives of the bushfood industry are to:

- Develop new and improved food products from Australian plant species for consumption by Australian and world consumers.
- Improve the quality and yield of existing and new bushfood plants, and reduce the unit production costs of growers.
- Promote the consumption of bushfood to Australian and world consumers, with such promotion to include existing bushfoods, those being improved or developed, and when available, new products.

The design of the database needs to assist with these objectives.

The design is based on findings from the consultation and the subsequent analysis process indicate that:

- All the above objectives are supportable by bushfood industry database.
- The success of the industry in meeting the above objectives depends critically on successful innovation and the database design must be consistent with the process of innovation.
- To assist innovation, the database design must:

- assist the integration of research, development and commercialisation activities;
- permit innovators to get a return on their innovations in a competitive market, through intellectual property protection, or by exploiting their breakthrough themselves; and
- make it easy for producers with common problems to share, trade or exchange information on terms advantageous to all.
- To facilitating links between the research sector, production and marketing, the database content must be suitably wide ranging. For example it must permit research and promotion in specialist areas such as anthropology, sociology, horticulture, botany, nutrition, toxicology, food processing, marketing, tourism, food science and cuisine, and not exclude those value-adding activities where the bushfood contribution is low.
- To permit a return on innovation, while facilitating the sharing of information on common problems, the database should increase the formal and tacit agreements on information exchange and assist their viability by restricting access to benefits and enforcing collective exchange terms (both monetary and non-monetary).
- The database must at least have the potential to be self-supporting so that aggregate returns to all users would cover the database cost, and the actual contributions can meet ongoing costs after establishment.
- The database structure must be an efficient way to service the different information needs of the different industry interests.

## **Implications**

### ***Distributed versus a central database***

The consultation showed that the industry could be grouped in many different ways such as, by activity, by plant species, by region, by degree of integration between research and marketing, by the degree of specialisation, by research intensity. The extent of common interests differs between various bushfood groupings, as does the extent of competitive pressures within and between the groups.

To meet the needs of all bushfood groups, a single central database would need a hierarchical bottoms-up structure, with a complex set of security and entry procedures. Most of the information exchange would take place at lower levels. This is because:

- this is where there is the greatest need for sharing solutions to common problems (growers of a single type of food or in a particular region share common interests and common problems); and,
- the larger industry players have already established the information links and have a lesser need for a database.

The complexity of the grouping and permission structures needed by a single central database would increase its establishment costs and make it more difficult to use. At the same time, its support is weak. No one group would be closely identify with its functions, and the larger industry players may see it as a competitive threat. Obtaining contributions

is likely to be difficult. In summary, this design seems poorly suited to the industry's needs.

The distributed database allows the bushfood group that generates the specialist information to have primary autonomy and control over that information, and so would be supported by most specialist groups. Moreover, where there is value in combining information from the specialist databases into a high-level linking database, the technology to support that consolidation, to whatever extent agreed, is available and is affordable.

### **Database content**

A specialised database will be most viable if it shares the information on common problems faced by cooperating groups, while, at the same time, restricting access to information that affect competitiveness and a normal commercial return to investment in innovation.

Because each specialised association can benefit from links to specialised research centres, nurseries, and regional food processors and marketeers, the strongest demand for shared data is likely to be for up-to-date lists of the names, addresses and functions of the members and the specialist organisations that service them.

Commercial information (sales revenue, prices, costs) is the least likely information to be shared, although the aggregate statistics on planting, and on present and forecast harvests might be very useful for investment planning by bushfood marketeers and producers. Growing notes are published at a national/state level, but specialist regional information may be used as a basis for competitive advantage either as between growers within an association or between different associations that supply the same product.

### **Choice of database technologies**

Despite the significant level of publicly available information, specialist associations can gain from more formal in-house methods of data sharing as can be implemented via the internet and by formal database structures.

Associations/cooperatives wishing to commence or formalise their own specialist bushfood database should start by ensuring that all their relevant database information is stored electronically.

Association/cooperatives should also ensure that they are able to distribute information to their members by a variety of methods including by email.

## **6.2 The rationale underlying the design basis**

The design derives from combining the consultation findings with the process of innovation. The reasoning behind definitions and/or findings that might be controversial is detailed below.

## **Innovation**

The constancy of pressures for innovation in bushfood arguably exceeds those of most food industries. There are many potential new products, established markets are few, and research into varieties, growing and processing is in its infancy. The industry clearly has more than its fair share of innovators. In fact some products that may have once been promoted as a bushfood, e.g. the macadamia nut, are now promoted as a foodstuff on its own merits rather than as an Australian bushfood.

Because successful innovation is critical to the success of the bushfood industry, a bushfood industry database must be structured to assist and not hinder innovation. The first process in innovation is research, the last is marketing, and between these is experimenting and development, etc. However, the process is not linear - the research phase is not completed before the experimentation begins, nor do market trials only begin after all development work is done. The studies of innovation show success is more likely when all phases feed into one another - innovation is neither pulled by the market need (mother is the necessity of invention) nor pushed by supply (a good product creates its own demand). It is most successful when those undertaking the different phases interact with one another, so that all the ingredients required for a successful new or improved product can be kept in proportion. Thus a bushfood industry database must help integrate the research, marketing and production sectors of the industry.

## **The pressure for collective industry action**

The bushfood industry is not homogeneous. The players come in different sizes with different degrees of involvement and commitment to bushfood. There are differences in ideology, in commercial activities, in the degree of integration, in grower links, in product and in regional coverage. Consequently, it is unlikely that a single, central database would meet the needs of the majority of industry members.

## **The need for a computer-based database**

Advances in (computer-based) information technology have transformed the storage and transmission of information. This transformation continues, with many databases currently used by the bushfood industry already in an electronic form (e.g. the QDPI Fact sheets distributed by CD-ROM).

Individuals and organisations involved in the consultation process thought that within the next decade, the Australian bushfood industry would almost certainly have its own internet site, and almost all its information exchange would be digitally based. Nevertheless, despite the growing use of computers by Australians, significant numbers of bushfood suppliers remain reliant on traditional means of information exchange and storage. As a group, the traditional landowners are the least skilled in the computer technologies, although there are some exceptions.

## **The information transmission system**

The most effective information transmission system appears to be the internet. This system is well suited to the requirements of a bushfood industry database. Furthermore, its uptake and use is rapidly increasing throughout Australia. For example, a 1998 Australian Bureau of Statistics (ABS) survey has noted that the numbers of households with access to the internet is increasing at an annual rate of 46%. Although the internet

appears the best transmission system in the long-term (over 5 years), in the short-term, a bushfood industry database may need to provide a number of other transmission options. This is because of the relatively low levels of computer ownership and/or skills among some grower associations require that the database information be available in printed form. Users requiring database information in print form said they preferred loose-leaf sheets so that their information can be cheaply and easily kept up-to-date.

The bushfood industry database design assumes grower associations will use computer-based technology. There will be increasing pressure on associations to adopt internet technologies for communicating with members. The database will increase the pressures on members to link to the internet for information and email. However, some associations may continue distribution by post to those members that do not have internet connection or computer technology.

### **Financing the database**

We assume that the on-going running cost of the database would ultimately be financed by industry after an establishment period. Our consultations suggest that the main source of industry funding would be groups of growers/harvesters/processors. These are the most dependent on database information and would benefit most from it.

Within the grower/harvester/processor groups, there was a consensus towards a subscription-type of levy. Whether this would be enforced is a matter that would have to be further considered by the grower associations and harvester cooperatives.

If one of the objectives of a site were to promote bushfoods, then at least the home page would be publicly accessible. If subscriptions were outstanding, a grower's right to advertise on the site could be restricted. Parts of the site containing information useful to growers, for example, average prices, could be restricted to paid-up members by use of a password. Another alternative that received limited support was that the user should be charged for downloading, or otherwise ordering, fact sheets. The potential for the site to earn advertising revenue appears very limited, as many of the more significant players have, or are developing, their own internet site.

Many organisations currently charge between \$50 and \$100 a year for membership. This level of contribution should be sufficient to support on-going database costs.

### **Example of a smaller, specialist database**

A possible example of a smaller, specialist database is provided by the information in Appendix I of this report which contains a review of information on bushfood, in terms of:

- Books.
- Periodicals, fact sheets, research projects and research papers.
- Internet sites and email addresses.
- Videos.
- Organisations involved in the bushfood industry:
  - General.
  - Nursery suppliers.
  - Bushfood processors.

- Buyers of bushfoods.

This information could be made available on the internet, and used to promote information transfer within the industry.

## 6.3 The system design

The consultation process indicated that a single, central, encyclopedia-type database was not viable, because of lack of support. Furthermore, there appeared to be little need for more information of a general nature.

However, there appeared to be a need for a system of several smaller directory-type databases for the different specialist grower/harvester/processor associations. Fortunately, with internet technology, it is possible to provide a system of smaller specialised databases, which are nevertheless linked together into a larger structure.

The section below discusses the information management system for such an option, in terms of:

- a top-level internet site that links other sites in a hierarchical structure, and
- a series of specialised internet sites and databases linked to the top-level site.

### **The top-level internet site**

#### *Name of site*

The name might be “Australian Bushfood Industry Database”. This name reflects the fact that the internet site presents a single public face for the different bushfood organisations, some (or most) of which could ultimately run their own internet site, if they so chose.

#### *Purpose*

The sole purpose of the top-level site is to improve the efficiency and effectiveness of the specialist bushfood sites. It would do this by:

- Providing a top-level structure for the specialist internet sites. This would help internet users find their way around and between the bushfood sites. The relationship between the specialist bushfood sites is immediately apparent from the linking structure.
- Providing a single point of reference for all specialist sites. This would act to promote each of those specialist bushfood areas. It can hold summary information on each of the specialist organisations, and generally describe how the great variety in Australian bushfoods has led to specialist bushfood areas.
- Providing visual imagery that shows the locations of each specialist organisation on a map, the key plant species, and the bushfoods they produce. In this way, the top-level site would promote all specialist sites. A banner may say: “Click on a specialist organisation to have a map reveal the location of the organisation, and the plants and bushfoods it sells”. For more information, internet users could “jump” to the specialist site itself. This has the potential to improve overall information handling, but the main attractiveness is in

- promotion, and in reducing search time and costs to Australians and others seeking information on Australian bushfoods.
- Facilitating the phased generation of specialist internet sites. Should it so desire, a specialist organisation can wait and see how the system works before joining, and can choose to enter the system when their membership so agrees.
  - Providing a single entry point for hyperlinks for those service providers that service the industry's growers/harvesters/processors, the cost of establishing, maintaining, managing and using these links is reduced.

### ***Management and updating***

Once established, this top-level internet site would require little in the way of management or updating. Perhaps a once-a-year review might be appropriate. The integrated design of the structure at development time would set up the facilities for editing and adding content to the site.

### ***Hardware***

For reasons of economy, it is proposed that the specialist organisations do not have their own internet servers. Instead, an overall price that provides a quality service (technically a function of bandwidth to ensure fast response at peak times and built-in redundancy to minimise downtime) is negotiated for all specialist internet sites and the top-level site.

The physical location of the internet server is not relevant in an internet-based network. Internet users, whether updating their own site or using others, cannot determine the physical location of any piece of information.

A separate issue for the specialist organisations is whether they choose a common (perhaps national) Internet Service Provider (ISP) or each chooses its own (perhaps a regional one). We assume without loss of generality that the specialist organisations do not share a common ISP.

The specialist organisations would therefore only need a computer to update the information on their own site.. A "Pentium" PC would be satisfactory. It could also serve to update information on the top-level internet site, after establishment, in accord with the built-in permission structures and updating schedules agreed at establishment time.

### ***Site content***

The content of the top-level internet site would include:

- names of the specialist organisations, in the form of hyperlinks;
- promotional material;
- lists of organisations that service the bushfood industry, for example, Botanic Gardens, Greening Australia, PBR, New Crops, *Australian Bushfoods* magazine, etc;
- a bibliography; and,
- a list of associated bodies.

### ***Comments on selected aspects of the site***

*Use of a formal database:* It is a matter for the developer of the internet site to determine whether to use a formal database structure (for example Microsoft Access) to contain the links and content. Nevertheless, we expect that a specialist organisation may want a formal database structure to meet its current and future information processing needs. This is a technical matter. It will depend in part on whether an internal search engine is used to optimise searching over the internally-stored reference material.

*Promotional material:* As discussed earlier, this could include a map, and images of bushfood and bush plants. It would help identify the specialist organisations, and form a public gateway to their internet site.

*Lists of associated bodies and individuals:* This would enable those services to be contacted by the growers, and further promote bushfood to the public. It may be advisable only to provide contact details when the body does not have its own internet site, in order to minimise updating.

*Advertising:* A policy on whether to accept advertising on this site may have to be resolved. The initial position would be not to so allow, until the matter was considered and resolved by the specialist organisations. If agreed, fees and authorisation procedures would be specified.

*Notice boards/list servers:* These features are a notable, but intended, exception from the top-level internet site. This is because these services already exist on the internet at a general level, and unnecessary duplication with existing services is not seen as beneficial. The real need for such services is on the specialist sites, where there is some ability to exclude free-riding rivals.

### **The specialist internet site**

The key characteristic of the specialist internet site is its division into public and private areas. Access to the private area can be controlled by password. Passwords can expire, and their renewal can require membership renewal or some other equivalent process.

#### ***Content of public area***

This could contain:

- Name and contact details of the specialist organisation.
- Promotional material, for example, pictures, recipes, or maps.
- Information on the specialist bushfood organisation, perhaps its charter.
- Application forms for membership.
- Chargeable downloadable specialist information to help new growers, with an option for delivery by post, fax or email.
- Up-to-date newsletters and notices of public activities.
- Promotional material relevant to the specialist bushfood area.
- A link to the top-level internet site and the material it contains.
- Dynamic and up-to-date hyperlinks to articles on other internet sites.

- Lists of specialist service providers, e.g. local universities and learning institutions specialising in the areas covered by the specialist organisation running the site. Associations may allow advertising in the public area, but keep lists of recommended service providers in the restricted area.
- Information-gathering questionnaires.
- Membership renewal application.
- A bibliography of relevant literature.

### ***Content of private area***

This could contain:

- Latest research findings.
- Lists of recommended service suppliers specialising in the area.
- Calculation of aggregate supply and demand (present and forecast). Options are for non-audited grower entries, for computer-based audit, or for an independent external auditor.
- Confidential newsletter.
- Other information as determined by the association. This could include specialist list servers.

## 7. Implementation strategy for the database

It appears that a bushfood industry database could address many of the information deficiencies that previous studies have identified as symptomatic of the bushfood industry. Because of the dominant role of innovation in this industry, there appears to be many forms of market-failure in information, and a database would help rectify such failures.

The study found that the most cost-effective database strategy would be internet-based using:

- a top-level internet site that links other sites in a hierarchical structure; and
- a series of specialised sites, and databases linked to the top-level site.

Government funding will most likely be required for the establishment of a top-level internet site. This funding could be provided by the Commonwealth government (through RIRDC), or by a collaborative effort from Commonwealth as well as State/Territory governments.

The series of specialist sites and databases could be provided by the different groups (or associations) within the Australian bushfood industry. Some of these groups (or associations) already have an internet presence, others are in the process of establishing such a presence in the next 6-12 months.

Other groups (or associations) are unready at this stage for an internet presence. Some have inadequate computer skills, and the members of others might wish to wait longer before adopting this new technology. The proposed database strategy allows for these groups (or associations) to link to the top-level internet site at a later date.

## 8. Conclusions

The findings of the study indicate the following conclusions:

- A single central database was not viable, because of lack of general support and little need for more information of a general nature.
- A system of several smaller databases, for the different specialist groups (or associations) within the industry, appears viable.
- Several small specialist databases serving the functions of specialist groups (or associations) are a more efficient solution to the industry's information problems than a single central database.
- A set of smaller specialist databases would help promote industry innovation and growth (even if some of the larger industry players did not become involved in such databases).
- What the specialist groups (or associations) need is not just a database, but an information management system that meets their specialist requirements. This information management system can be based upon the internet.
- An internet based set of smaller, specialist databases would be viable because of:
  - widespread support within growers/harvesters/processors; and
  - low maintenance costs, with each database being managed by its appropriate group (or association).
- These smaller, specialist databases can nevertheless be linked together under a top-level internet site, to provide an overall public face for the Australian bushfood industry. This site, potentially called the "Australian Bushfood Industry Database" could provide an overall structure, but at the same time allow a level of individuality for the different specialist databases.
- The top-level internet site, with links to the smaller, specialist databases, could most effectively be provided (and funded) by government.
- The smaller, specialist databases, would most effectively be provided (and funded) by the different specialist groups (or associations) that have information relevant to some aspect of the bushfood industry, and which wish to link to the top-level internet site.
- Groups (or associations) in the bushfood industry that are not yet ready to have such an internet presence can link to the top-level internet site at a later date.

## 9. References used in the report

**Please also see references in Appendix I**

Aboriginal Communities of the Northern Territory (1993). Traditional Aboriginal Medicines in the Northern Territory of Australia. Conservation Commission of the Northern Territory of Australia.

Cherikoff V. and Isaacs J. (1989). The Bushfood Handbook. Ti Tree Press, Sydney.

Cherikoff V. (1993). The Bushfood Handbook. Bush Tucker Supply Australia Pty. Ltd.

Rural Industries Research and Development Corporation (1997a). Prospects for the Australian Native Bushfood Industry. RIRDC Research Paper No 97/22.

Rural Industries Research and Development Corporation (1997b). R & D Plan for the Australian Bushfood Industry 1997-2001. Rural Industries Research and Development Corporation. Commonwealth of Australia.



# Appendix I

## Review of information on bushfood

This review of information on bushfood has been compiled under the following broad categories:

- A.I.1. Books.
- A.I.2. Periodicals, fact sheets, research projects and research papers.
- A.I.3. Internet sites and email addresses.
- A.I.4. Videos.
- A.I.5. Organisations involved in the bushfood industry.
  - A.I.5.1 General.
  - A.I.5.2 Nursery suppliers.
  - A.I.5.3 Bushfood processors.
  - A.I.5.4 Buyers of bushfoods.

Within each of the above categories the information is provided in alphabetical order by title (or organisation) name.

In some instances the same title (or organisation) is indicated under more than one of the abovementioned broad categories.

## A.I.1. Books

A number of books were identified by the review of key literature. These are indicated below in alphabetical order by title, with \* indicating particularly relevant information sources.

*A Short Bibliography of Useful Australian Plants*, Rodney Barker, SGAP, 1992.

*\*Aboriginal Environmental Impacts*, James Kohen, Southwood Press, NSW, 1997.

An invaluable account of Aboriginal land management over the last 50,000 years. The book presents the arguments and evidence to show that Aboriginal influence on many ecosystems of this continent has been profound and that any understanding of Australian land management and its ecosystems must take this into account. This book is particularly relevant to those involved in sustainable land management of remnant ecologies in Australia.

*\*Aboriginal Plant Use from the Elsey Area Northern Australia*, Glenn Wightman, Jessie Garalnganjak Roberts and Lorraine Williams, Conservation Commission of the Northern Territory, 1992.

*Aboriginal Plant Use from Kulimindini (Elliot) Northern Australia*, Glenn Wightman, Dilkbarri Dixon, Lorraine Williams and Injimadi Dalywaters, Conservation Commission of the Northern Territory, 1992.

*Aboriginal Plant Use from the Victoria River Area, Northern Australia*, Nicholas Smith, Bobby Wididburu, Roy Nuwallat Harrington and Glenn Wightman, Conservation Commission of the Northern Territory, 1993.

*Alawa Ethnobotany, Aboriginal Plant Use from Minyerri, Northern Australia*, Glenn Wightman, Donna Jackson and Lorraine Williams, Conservation Commission of the Northern Territory, 1991.

*Arrente Foods, Foods from Central Australia*, Margaret Mary Turner Institute for Aboriginal Development, Alice Springs, NT.

An excellent series of publications that combines traditional Aboriginal knowledge with Western science and research. The information presented is based upon traditional plant knowledge of a number of NT communities and provides useful guides to the many native foods of the region. Jointly produced by the NT Herbarium, Conservation Commission of the NT, and the Traditional Bush Medicines Project of the NT.

*A Key to Useful Australian Acacias for the Seasonally Dry Tropics*, Maslin B. R., and M.W. McDonald, CSIRO Publishing.

**\*Aromatic Plants**, Wrigley, J.W. and Fagg, M., Australian Native Plant Library, 1990, 130pp.

Describes more than 700 species of Australian aromats, their uses, classification of odours, elements and with 75 coloured photos. The authors are authorities on native plant species and have carried out considerable works with the Australian National Botanic Gardens in Canberra and the Coffs Harbour Botanic Gardens on the North Coast of NSW.

**Australia's Wild Food**, Tim Low, Collins/Angus and Robertson.

**\*Australian Dry Zone Acacias for Human Food**, House, A.P.N., and E. Hardwood, CSIRO.

A short account covering a number of aspects related to the commercial production and wild harvesting of a number of Acacia species with culinary potential. One of the first published releases on this topic and a useful research base for the industry to build on.

**Australian Herb Industry Resource Guide**, PO Box 203, Launceston, Tas, 7250.

**\*Australian Medicinal Plants**, Lassack, E. and T. McCarthy, Mathven, 1983.

An early release that was largely overlooked when it came out yet it has drawn from extensive research carried out on the chemical constituents, and possible medicinal/nutritional benefits of native plants.

**Australian Native Plants: Horticulture and Uses**, K. Johnsson and M. Burdett, UNSW Press.

**\*Australian Native Plants: Propagation, cultivation and use in landscaping**, 4th ed., J.W. Wrigley and M. Fagg, Reed Books.

An updated edition of a comprehensive classic that has served as a bible to the horticultural industry since the early 1980s. Not much on native edibles but all other subjects of amenity horticulture are well covered. A particularly important reference for those looking to cultivate native foods. The authors are authorities on native plant species and have carried out considerable work with the Australian National Botanic Gardens in Canberra and the Coffs Harbour Botanic Gardens on the North Coast of NSW.

**\*Body, Land and Spirit**, Janice Reid, U of Qld Press, 1982.

An important and fascinating account on traditionally-oriented Aborigines that draws on the original research of thirteen anthropologists, health professionals and scientists. The book reveals the sophistication and diversity in Aboriginal medical theories, practices and health that has largely been unrecognised in the delivery of Western health care to Aborigines. The book opens with a classic introduction that places current Australian populations in the same situation as Aborigines, as futuristic victims of northern invaders. Mandatory reading for anyone working with Aboriginal communities particularly those related to health and environment as many native-food projects do. Touches on traditional use of foods and includes an excellent chapter on bush medicines and indigenous pharmacopoeia.

***\*Broome and Beyond, Plants and People of the Dampier Peninsular, Kimberley, Western Australia***, Kevin F. Kenneally, Daphne Choules Edinger and Tim Willing, Department of Conservation and Land Management, WA, 1997.

An excellent reference for those seeking information on the flora of the Kimberley region and the Dampier Peninsula. It describes more than 700 species dealing with the environment, traditional Aboriginal plant uses, botanical exploration, plant communities and conservation. Excellent colour photos are included. Provides an insight into the benefits of preserving habitats and the value of food-bearing species for all arid regions of the world.

***\*Bushfood***, Jennifer Isaacs, Weldon Press, Sydney, 1987.

One of the first of the recent wave of books on native foods and medicines covering the last decade. An excellent reference and guide to the wisdom of Aboriginal survival and some great eating covering all aspects of the diet. Jennifer has written a number of important books on Aboriginal culture, native foods and related subject matters.

***Bushfood: A companion guide***, Jennifer Isaacs, Landsdowne Publishing, 1996.

A pocket edition to follow up the larger earlier publication by this author. Goes through a range of Aboriginal foods with some references to medicines and implements. Mainly covers wet and dry tropics and central Australia. Quite informative, although readers after more detail should seek out the full edition of *Bushfood*.

***Bushfood Plants, Useful and Edible Australian Plants for the South East***, Merryn Carey and Peter Gow, Sapphire Coast Producers Associations, 1997.

***Bushfoods of New South Wales: A Botanic Record and Aboriginal Oral History***, Kathy Stewart and Bob Percival, Royal Botanic Gardens, Sydney, 1997.

***\*Bushfires and Bushtucker***, Peter Latz, IAD Press, Alice Springs.

One of the most comprehensive guides ever published of desert plant use. Latz importantly explains with supporting experiential observations and documentation how Aboriginal management of the country has allowed its people to survive and prosper. Their methods of manipulating certain species provides clues to the industry on how to cultivate some of the core industry species and Latz provides some much needed figures on quantity production per hectare from the wild and the drop in production that occurs when human manipulation ceases. Peter has been a leading botanist in Central Australia over the last 30 years with the Conservation Commission of the Northern Territory.

***\*Bushtucker: Australia's Wild Food Harvest***, Tim Low, Angus and Robertson/Harper Collins, Sydney, 1989.

An interesting addition to Tim's previous publications with some great photographs and accounts of both Aboriginal and early colonists uses of native foods. This book covers many species from all States and has proven to be an important publication for the native foods industry. Includes a useful chart on the nutrition of many of the foods.

***Bushtucker: Plants of the South-West***, Draw B., Walley T. and G. Keighery, CALM WA, 1997, 64pp.

Published by CALM, WA, 50 Haymen Road, Como 6152. Part of a series entitled Bush Books. Practical field guides designed to assist those interested in Western Australia's unique flora, fauna and ecologies. An informative pocket edition from a series of wildlife books by CALM. Discusses the more common species of the region with Aboriginal names and collecting/flowering times.

***Bush Medicines: The Pharmacopoeia***, Scarlet, White and Reid, UQP, 1982.

***Bush Medicine***, Tim Low, Angus and Robertson, 1990.

Similar in style to Tim's Bushtucker publication and full of interesting anecdotes and wonderful photographs covering Aboriginal medicinal uses and early colonists herbal explorations of Australia's flora.

***Bushtucker Identikit***, G. Wightman and M. Andrew, Conservation Commission of the Northern Territory.

Useful pocket books for bushwalkers, tourists and backpackers. Good information that comes in a number of different categories which includes: ***Bush Medicines***, ***Desert Bushtucker***, ***Plant Identikit*** and ***Wildlife Identikit***. These publications have been made possible by the Aboriginal people of the Top End who have generously shared their traditional knowledge.

***Caring for Country: Aborigines and Land Management***, Young E., Ross H., Johnson J. and J. Kesteven, NPWS, Canberra, 1991.

***Cornucopia***, Stephen Facciola, Kampong Publications, 1990.

A wealth of information on the world's edibles, including species and many selections, hybrids and cultivars. Includes some Australian native food species. A reference book of great value to land managers seeking to diversify as it covers many exotic crops and their best selections or cultivars.

***\*CSIRO Handbook of Economic Plants of Australia***, M. Lazarides and B. Hince (eds.), 1993, 330pp.

A handbook listing scientific and common names for Australian plants of economic significance, including crop plants, fodder trees and shrubs, forest trees, weeds, Aboriginal food and medicinal plants, etc. An excellent reference guide for the science community and enthusiasts. Available from CSIRO Publishing, PO Box 1139, Collingwood, VIC 3066.

***Cradle of Incense: The Story of Australian Prostanthera***, George W. Althofer, Stanley Smith Memorial Publication Fund, 1978.

A book about the Australian Mint-bush, a genus of which some species are currently undergoing research for oil and culinary herb potential. An interesting account about species that occurred in the travels, dreams and experiences of George Althofer who described many new forms of this wonderfully aromatic genera.

**\**Creating with Bunya Nuts***, Rex Parsons, A Wyndham Observer Publication.

A useful recipe book about a grossly underrated food source with some very imaginative culinary delights.

***Desert Crafts***, Jennifer Isaacs, Doubleday, 1987.

***Developing New Agricultural Industries: Lessons from the past***, Wood, Chudleigh and Bond, R94/001 RIRDC, Canberra, 1994, 2vols, 350pp.

***Economic Plants of the Northern Territory***, Department of Primary Industries and Fisheries, Northern Territory of Australia, Technical Bulletin 195, Agdex 305/30.

Covers the listing of plants with potential economic value suited for cultivation in the tropical and arid zones of the Northern Territory. Plants used by Aboriginal people are included where they are considered to have potential for future development. Cultivation history in the region of the listed species is also given.

**\**Economic Native Trees and Shrubs for South Australia***, Neville Bonney, Greening Australia, SA, 1998.

This publication is aimed at small and large landholders who are seeking to diversify into tree related incomes. A valuable reference for those happy to mix native foods with other useful native species (cabinet timber, medicinal, forage, oils, salinity uptake, revegetation etc.). Covers some 300 species with details on cultivation and identification references. Relevant to other states as well as SA.

***Edible Wattle Seeds of Southern Australia: A Review of Species for Use in Semi-Arid Regions***, B.R. Maslin, L.A.J. Thomson, M.W. McDonald and S. Hamilton-Brown, CSIRO Publishing, 1998.

***Essential Oils of Austeromyrtus, Callistemon and Melaleuca Species***, Brophy J.J. and J.C. Doran.

***Essential Oil Isolates from the Australian Flora***, Kassak E.V. and L.A. Southwell, Museum of Applied Arts and Sciences, 1977.

***Ethnobotany, Vegetation and Floristics of Milingimbi, Northern Australia***, Glenn Wightman and N. M. Smith, Conservation Commission of the Northern Territory, 1989.

***Field Distillation for Herbaceous Oils***, 2nd edition, Denny E.F.K., McKenzie and Associates, 270pp.

**\**Future Eaters***, Tim Flannery, Reed Publishing, 1995.

An interesting account of the evolution of Australia's (Oceania's/Gondwana's) flora and fauna in combination with humanity's eating habits. Discusses these eating patterns and the impact on the environment that our populations have had. Briefly mentions some of the native foods in various stages through the book.

**\*Fruits of the Rainforest**, W and W Cooper, Geo Productions/RD.

This book illustrates the fruit of 626 species of plants found in North Queensland's tropical rainforest. Also included is edible species. The illustrations are superb and information was gleaned from North Queensland's Tropical Research Station on the Atherton Tablelands.

**Gurindji Ethnobotany: Aboriginal Plant Use from Daguragu Northern Australia**, Northern Territory Botanical Bulletin No 18, Conservation Commission of the Northern Territory, PO Box 496, Palmerston, NT, 0842.

**Go Native: Wild Food Cookbook**, Jan Sked, SGAP, Pine Rivers.

**Mayi, Some Bush Fruits of Dampierland**, Gather Mayi *et al*, Magabala Books, Broome, WA.

**\*Money Trees on Your Property: Profit gained through trees and how to grow them**, David Fitzpatrick, Inkata Press.

An excellent guide to the economics of growing trees on farms, the costs and benefits of planting, maintaining, harvesting and marketing farm trees are dealt with, the concept being of particular relevance to native food operators.

**Moth Hunters of the Australian Capital Territory: Aboriginal Traditional Life in the Canberra Region**, Josephine Flood, Josephine Flood, 1996, 43pp.

A short description of traditional Aboriginal life in the south-eastern highlands or southern uplands of Australia. A revised version of a short account of Aborigines of the ACT, commissioned in the 1980s by the then Department of Aboriginal Affairs. An important account of Bogong Moth hunting and ceremonial activities and Aboriginal life in this region including brief mention of plant species used.

**Natural Plant Dyes**, Judith V. Hallet, Kangaroo Press, 1993.

An excellent guide on how to obtain a wide range of natural colours for fabric dyeing using plant extracts. This includes a large number of Australian species.

**New Crops DOOR-Marketing: Do Our Own Marketing Research**, Rob Fletcher, School of Land and Food, U of Qld, Gatton, 1998, 153pp.

**New Zealand Medicinal Plants**, S.G. Brooker, R.C. Cambe and R.C. Cooper, Heinemann Publishers, 1981.

**Permaculture: A Designers Manual**, Bill Mollison, Tagari Publications, 1988.

**Pests, Diseases and Ailments of Australian Plants**, David Jones, Rodger Elliot.

**\*Plants and People: Aboriginal Uses of Plants on Groote Eylandt**, Aust. Inst of Aboriginal Studies, Canberra, ACT.

**Plants for Medicines**, Collins, Culvenor, Lamberton, Loder and Price, CSIRO, 1990.

*Plants of the Tropical Woodland*, Mike Clarke and Stuart Traynor, Conservation Commission of the Northern Territory, 1987.

*Plants of Western NSW*, Cunningham G., Mulham W., Milthorpe P. and J. Leigh, Soil Conservation Service of NSW, 1981.

An invaluable book for arid land managers with many references to Aboriginal use of dry climate flora in this region.

*Punu, Yankunytjatjara Plant Use*, Goddard C. and A. Kalotas, (Eds.), Institute for Aboriginal Development/Angus and Robertson, 1985.

Quandong: A Viable Opportunity, R\*O\*D Books, WA, 1993.

An account of the Quandongs colonial and Aboriginal history, its cultivation at an experimental farm at Quorn in SA. It also comes with recipes and useful cultivation information. Compiled at the Minnipa research station, SA by the State Tree Centre and the Department of Agriculture, SA.

*Seeds of Change*, Viola H. J., and C. Margolis, 1991, Smithsonian Institute.

A wonderfully underrated publication for plant enthusiasts that covers the immense cultural and environmental changes stemming from the arrival of new plant foods to the New World due to Christopher Columbus and those who followed him. Particularly relevant to the growth of the Native Foods industry and how difficult it can be for countries to re-include into everyday use, indigenous plants which have lost focus as a result of immense changes in culture and environment.

*Sixty Wattles of the Chinchilla and Mulla Shires*, Grace Lithgow, through the Bushfoods Mail Order Bookshop.

*\*Some Citrus Species and Varieties in Australia*, Alexander, D. McE, CSIRO.

A useful account of citrus hybrids, rootstocks and some native species of citrus that has become more important with the release by the CSIRO via Australian Native Produce Industries (ANPI) of some excellent native citrus hybrids.

*SEQ Forestry Network News: SEQ Forestry Network*, QDPI Forests Industries Development.

Free publication. Request from DPI Forests Industries Development, GPO Box 944, Brisbane, 4001, Fax 07 3234 1200.

*\*Sustainable Use of Wildlife by Aboriginal Peoples and Torres Strait Islanders*, Mary Bomford and Judy Caughly, Australian Government Publishing Service, 1997.

Looks at ways to ensure that wildlife harvesting, which has the potential to offer employment, improved nutrition, and fulfilment of cultural and spiritual values for indigenous peoples, meets these needs whilst being sustainable and integrated with community goals for the conservation of rare and endangered species. It also examines strategies which recognise that indigenous Australians have the ability and right to participate in environment management.

***Sandalwood***, Ian Kealley, CALM WA.

A detailed history of the Sandalwood Industry in a magazine format, 16 pages.

***The Illustrated Herb Encyclopedia***, Kathi Keville, Simon and Schuster, 1991.

***\*The Management of Sandalwood***, Ian G Kealley, CALM, WA, 1991.

An excellent and extremely detailed account of the Sandalwood Industry in WA covering all aspects of the Industry, cultivation and crop management. Relevant to dry-land operators wanting well documented case study examples on native crops.

***The Story of Sandalwood***, Alison Oats, Museum of the Goldfields of Kalgoorlie, WA, 1989.

A basic history of the Sandalwood and its uses. Very brief, 12 pages.

***\*Tables of Composition of Australian Aboriginal Foods***, Brand Miller, James, Maggiore, Aboriginal Studies Press, 1993.

The current bible on Bushfood nutrition providing an invaluable insight into the true value of many of our native species. An important information source to follow up from the initial source which uncovered the remarkably high percentage of vitamin C in the Kakadu Plum.

***The Aborigines of the Sydney District Before 1788***, Peter Turbett, Kangaroo Press, 1989.

***\*The Bushfood Handbook***, Vic Cherikoff and Jennifer Isaacs, Ti Tree Press.

A good reference guide for east coast species as well as promotion of the concept. One of the first extensive reference books with some invaluable practical information. Good species lists, loads of factual anecdotal background on plant uses and history and some wonderful photos.

***The Conservation Farmer: Newsletter of Conservation Farmers Inc***, PO Box 1666, Toowoomba, QLD 4350. Membership - \$50 pa (includes newsletter).

***The Pitjanjatjara and their Crafts***, Peter Brokensha, Aboriginal Arts Board, 1975.

***The Feast of the Bunya***, Cornelius Moynihan, Fortitude Press, 1901, reprinted 1985.

***\*The Use of Trees and Shrubs in the Dry Country of Australia***, Forestry and Timber Bureau, Australian Government Publishing Service, 1972.

An important early release that appears to have been way ahead of its time. A very practical publication that is still of great benefit to dryland farmers. Covers a wide range of topics including the value of trees on farms, selection of species, fodder, shelter belts, timber and its management, and cultivation.

***A Taste of Australis***, Ross, Joy, Five Mile Press.

**\*Tukka, *Real Australian Food*, Jean-Paul Brunteau, Angus and Robertson.**

A well written account of the core species from a chef's perspective. Excellent historical accounts given of both colonial and indigenous uses of species. One of the most readable culinary books written and has done a great deal to promote the concept and the indigenous cultures of Australia.

**\**Traditional Ecological Knowledge*, 1988, Williams N. and G. Bains (Ed) Centre for Resource and Environmental Studies, ANU, Canberra.**

**\**Traditional Bush Medicines*, Aboriginal Communities of the Northern Territory, Greenhouse Publications, 1988.**

One of the most extensive coverage of tropical species medicinal uses and Aboriginal pharmacopoeia.

**\**Useful Bush Plants*, Peter Bindon, WA Museum, 1996, 286 pp.**

Descriptions of over 200 Australian native species including uses for foods and medicines. A much needed account of Aboriginal plant use throughout WA, also including other parts of Australia. Profile sheet style write ups of each species including Aboriginal names and related uses in other parts of the world. Very useful book.

***Uniquely Australian*, Vic Cherikoff, Bush Tucker Supply Australia.**

***Useful Native Plants of Australia*, J. H. Maiden, Turner and Henderson, Sydney, 1988.**

***Use of Native Plants in the South East of South Australia by the Indigenous Peoples Before 1839*, Neville Bonney, Greening Australia, 1994.**

***Victorian Aborigines: Plant Foods*, Alison Oates and Annette Seeman, National Museum of Victoria, 1979.**

**\**Wild Foods of Australia*, A B and J W Cribb, Collins.**

One of the original reference books for the avid bush forager. However, some of the species discussed have perhaps been included somewhat ambitiously making interesting anecdotes but not so relevant for those into serious native foods production. An important milestone in the literature of the industry.

***Wild Food Plants of Australia*, Tim Low, Angus and Robertson/Harper Collins.**

***Wild Herbs of Australia*, Tim Low, Angus and Robertson Harper/Collins**

**\**Wild Lime*, Juleigh Robins, Allen and Unwin, Sydney, 1996, 210pp.**

A good coverage of the main core species of the native foods industry, along with a few not so common additions. Some interesting recipes as well as useful sections on where to purchase supplies and plants, a much needed reference.

***Wild Medicines of Australia***, A B and J W Cribb, Angus and Robertson, Sydney, Australia.

As for Wild Foods of Australia indicated above.

***World Vegetables: Principles, Production and Nutritive Values***, V.E. Rubatzky and M. Yamaguchi, 2nd Ed., ISBN 0-412-11221-3, Chapman and Hall, New York, 1997, 843pp.

## **A.I.2. Periodicals, fact sheets, research projects and research papers**

A number of periodicals, fact sheets, research projects, and research papers were identified by the review of key literature. These are indicated below in alphabetical order by title, with \* indicating particularly relevant information sources.

***Aboriginal Plant Use and Modern Horticulture-A Future in Common?*** John McCarthy, Total Earth Care, 37 Irrawong Rd, North Narrabeen, NSW, 2102, Tel 02 9979 8812.

Lecture given at the Royal Botanic Gardens in Sydney in 1993. A hard hitting critique of the problems that stem from modern day urban and rural land management systems that have chosen to ignore the value of our own native plant resources and the side effects for Aboriginals and non-indigenous land managers.

***\*A Commercial Herb Industry for NSW: An Infant Enterprise***, Fraser S. and P. M. Whish, RIRDC Research Paper 97/18, 1997, 134pp.

Describes how to overcome some of the constraints in establishing a herb industry for NSW. Looks at agronomic and cultural aspects of commercial production, seedling production, harvesting, handling, processing, packaging and marketing of the final product. All these are highly relevant to those seeking to grow native herbaceous foods many of which have similar cultivation requirements. Cost \$15.

***Agribusiness and Processed Food Developments in SE Asia***, Instate Pty Ltd for RIRDC Research Paper 93/1. Cost \$25.

***Alternative Farmer: The Land***, Reply Paid 19, PO Box 999, North Richmond, NSW 2754.

### ***ANBIC Ltd Journal***

Contact Denise Hart, ANBIC Ltd Company, PO Box 309, Civic Square, Canberra, ACT, 2608, Secretary.

***\*Assessment of Commercial Prospects and Research Priorities for New Industries***, Bond K., Chudleigh P. and I. Wood, RIRDC, 1997, 70pp.

Reviews existing models and methods of allocating research funds for new and emerging rural industries. It develops a model for the tree oil industry to explore and demonstrate how models can assist the assessment of research options within and between industries. Many of these papers though not written for the native foods industry can provide excellent formats for the industry to follow. This will prove very important in preventing industry players from reinventing the wheel, a current problem within the industry. Cost \$15.

***Aussie Bee: Bulletin of the Australian Native Bee Research Centre***, \$26.5pa (4 issues). Australian Native Bee Research Centre (ANBRC) Newsletter, PO Box 74, North Richmond, NSW 2754: produce 4 newsletters annually. Aims are to promote awareness about native bee species and to encourage preservation and enjoyment of Native Bees.

***Australian Agroforestry: Setting the Scene for Future Research***, RIRDC, 1991, 90pp. Cost \$10.

\****Australian Bushfoods Magazine***, 5 Issues, ISSN:1328-0074.

A publication providing updated information on industry contacts and growers guide to species with some information provided by scientists and enthusiasts. Requires further input from some of the more experienced people within the industry who have been involved with the practical growing side. However, an excellent and much needed magazine. Contact: Tel 07 5494 3812, Fax 07 5494 3506.

***Australian Bush Food Industry: A Brief Introduction***, DPI Note, Qld Department of Primary Industries.

***Australian Bush Foods: Illustrated unusual bushfood recipes***, ANCA, GPO Box 636, Canberra, ACT, 2601, Poster Format.

\****Australian Farmers Guide to the Internet***, Parker R., RIRDC, 1997, 300pp (approx), CD-ROM.

A start up CD-ROM to help farmers get on-line. Features tips to help first-time and novice users of the Internet to understand and make best use of its features, as well as an extensive directory of over 250 Australian agricultural related sites. Cost \$25.

\****Australian Native Produce Industries: Plant Catalogue 1996***, Australian Native Produce Industries, 1996.

An invaluable guide that covers how to cultivate core (mainly dry-climate) species and estimated costs and returns. Very little of this kind of information has been available for the industry to use as a benchmark for native crop production which makes this document an important source for the industry.

\****Black Wattle and its Utilisation***, A.G. Brown and Ho Chin Ko, CSIRO, 1997, 400pp.

An extremely detailed account of the commercial production of *Acacia mearnsii*. Provides excellent information relevant to the industry that could save a lot of time for those wanting to farm other Wattle species for food. Covers many aspects of genetic selection, in field production and cultivation, harvesting, establishing seed orchards, seed collecting and timber/bark removal. Available from RIRDC for \$25.

***Bush Delights Newsletter***, Limpinwood Gardens, Tel 02 6679 3353.

\****Bushfoods: a Vision for the Future***, Hardwick P. and P. James, Greening Australia.

A paper given by Paul James, another industry pioneer, at the GA conference held in February 1994. Pinpoints the benefits of concentrating on a few core species.

***Commercial Herb Industry for NSW: An Infant Enterprise***, RIRDC, 1997, 134pp.  
Cost \$15.

***Commercial Potential of NSW Flora***, RIRDC, 1995, 20pp. Cost \$10.

***Commercial Prospects and Research Priorities for New Industries***, RIRDC, 1997,  
68pp. Cost \$15.

***\*Ecosystem Bushfood Production in Sub Tropical Eastern Australia***, P. Hardwick,  
Greening Australia.

An excellent document by one of the industry's pioneers listing most species with commercial potential and ranking them according to their commercial potential.

***Efita 99***, European Federation for Information Technology in Agriculture, Conference held 27-30 September 1999.

Contact Ms U Rickert, Department of Agricultural Economics, University of Bonn, Meckenheimer Allee 74 Bonn, D-53115 Germany, Fax 49 228 733 431.

***Essential Oils and Plant Extracts, Proceedings of the Essential Oils Planning Workshop***, 1996/1. Cost \$15.

***\*Essential Oil Producers Association of Australia Newsletter***, Richard Davis, President, PO Box 147, Pennant Hills, NSW 2120.

Contact Richard on Tel 02 9979 9844 or 02 9484 1341, or Fax 02 9979 9608.

***\*Exploring Australia's Oldest Riches: A new path to economic success and ecological prosperity***, Gareth Wise, Director, Australasian Ethnobotanical Foundation (AEF), PO Box 11, West Ryde, NSW 2114.

A fascinating account of ethnobotanical research in Australia, and indeed the lack of it. Discusses opportunities for capitalising sustainably on our biological diversity and how Australia has only recently begun to uncover its wealth of pharmaceutical and indigenous food resources.

***\*Feasibility of a Sustainable Bushfood Industry in Western Qld***, D.G. Phelps, Qld DPI, RIRDC research paper 97/11.

An overview of the native foods industry including the structure, size and limitations with the focus on Western Queensland. Covers the availability of raw materials from core species found in this region and other species found in central Australia. Provides some useful on-farm information on soil types, plant distributions and frequency and quantity of produce. Cost \$15.

***\*Filsoll Reserve Community Development Program***, Laurel Walker, Munno Para Skill Share, 1994.

Filsoll Reserve Horticultural program was a 14 week training course for long term unemployed Aboriginal Youth in the Northern Suburbs (Munno Para, Elizabeth, and Salisbury) of Adelaide, South Australia. The program, funded by Levis, was considered a success by local community members and it generated a great deal of positive publicity for local Aboriginal Youth. Could provide a useful role model for similar projects

between cultures. Contact: Munno Para Skill Share, 112 Coventry Rd, Smithfield, Tel 08 8254 9111 for this report.

***Guidelines for Economic Evaluation of R&D***, Centre for International Economics, GRDC, 1997, 57pp.

A report that is the outcome of a joint project /workshop between the Grains Research Development Corporation (GRDC) and the Rural Industries Research and Development Corporation (RIRDC) held in July 1997. The project sought to implement an ongoing approach to research evaluation by these corporations. This written outcome contains a framework for undertaking evaluations that is considered suitable for ongoing or commencing research. Available from RIRDC for \$15.

***Handbook for Farmers and Investors***, Keith Hyde, RIRDC, 1997, 580pp.

***\*Improving Tea Tree Yield and Quality Through Breeding and Selection***, J. Doran, G. Baker, G. Murtagh and I. Southwell, RIRDC, 1997, 52pp.

Describes the successful development of a breeding strategy for high yielding varieties of *Melaleuca alternifolia* and the implementation of several breeding and selection trials. A very relevant document for information set-ups to trial and select improved native food species as many have oil production potential. Cost \$10.

***Information Exchange in Rural Industries***, RIRDC, 1995, 71pp. Cost \$10.

***Integrating Trees with Livestock Grazing***, RIRDC, 1997, 30pp.

***Land Management Society Newsletter***, Land Management Society, PO Box 242, Como, WA, 6152.

***Medicinal Herbs and Pharmaceutical Plant Extracts***, RIRDC 1997, 15pp.

A brief report that outlines the current status of the Australian industry and endeavours to determine the potential for further development. Discusses the pitfalls of the industry and the lack of support for R&D into the many indigenous herbs with commercial potential, a problem of relevance to the native foods industry.

***\*Native Foods, Provenance and Genetics***, John McCarthy, Total Earth Care, 37 Irrawong Rd, North Narabeen, NSW, 2101.

Proceedings of a paper given at the 1998 Provenance Conference held by Greening Australia in June of that year. Argues in support of the native foods industry and the important role it has to play in helping to provide sustainable economic options to our current methods of land management and how the industry is being underestimated by related industries that could significantly assist its development.

***New Crops, New Products, New Opportunities***, RIRDC, 1997, 2 Vols, 640pp.  
Cost \$60.

*New Uses Briefing Book: American New Uses Council*, 1995, 389pp.  
Available from Jonathan Harsch, New Use Council, PO Box 144, Jamestown, RI 02835-0144 USA. Cost \$90.

*Permaculture Journal*, 1983, Number 13, pp4-12.

*Postharvest Handling and Packaging of Fresh Herbs*, Lapresti J. and B. Thomkins, RIRDC Research paper 97/5, 44pp.

A review of fresh herbs harvesting in Australia. The major finding was how little research had been carried out on post-harvest handling and packaging of culinary herbs in spite of an increasing demand. Wastage levels are high and treatments do not reflect the differing requirements between culinary species. Important lessons can be learnt from this research for those wanting to produce fresh native herbs. Cost \$15.

*Processing Trees on Farms*, RIRDC, 1996, 60pp.

A study that examines forests and plantations as a resource and looks at the future availability of wood. It surveys the extent of farm forestry plantings and the economic benefits of farm forestry. This report shows how these farms can be managed to maximise production of valuable timber lines, a method of importance to native food producers. Cost \$20.

*\*Prospects for the Australian Native Bushfoods Industry*, RIRDC, 1997, 74pp.

Provides an overview of the industry with excellent coverage of 14 plant species, with examples of costs and returns included. It explores opportunities and weaknesses within the industry. Most importantly, it provides some direction for those looking to get their hands dirty and ball-park figures to offer some indication of budgets required. A valuable document that will need to be updated in the future. Cost \$30.

*Quandong Propagation*, M. Sedgely, Aust Horticulture, 1984 (10).

RIRDC, PO Box4776, Kingston, ACT, 2604, Tel 02 6272 4593.

*\*Tree Performance Databases and Selection Systems*, Tim Vercoe and Bronwyn Clarke, RIRDC, 1997, 57pp.

Proceedings of a meeting held in Canberra, 8-9 March 1995. Provides some useful guidelines and database examples for selecting the right tree for the right conditions and then being able to calculate economic and environmental returns for people investing in trees on farms. Formats are extremely useful for those in the native foods industry, in particular primary producers who require a technique to compile data to assist in improving crop production and environmental management. Cost \$16.

*\*The Australian Native Foods Industry: New Challenges for the Plant Propagator*, John McCarthy, Total Earth Care, 37 Irrawong Rd, North Narrabeen NSW, Tel 02 9979 8812.

A talk given at the 1995 International Plant Propagators Convention at Adelaide in May. Covers a brief overview of the Australian native foods industry as was in 1995, and its origins and insights into the challenges for the plant propagator. It also covers some

important ground-breaking work on the propagation of native food species. At this stage John was Senior Project Officer with ANPI.

***\*The Australian Native Foods Industry: Part of Australia's Changing Relationships Between its People and its Flora***, John McCarthy, Sydney Native Nursery and Total Earth Care, 37 Irrawong Rd, North Narrabeen, NSW, Tel 02 9979 8812.

An interesting account of the relationship between Australia's people of all ethnicities and how our environments are shaping our use of flora and management of our land and its vegetation. Particularly relates to food production and the potential of the native foods industry as an underestimated component for our farming systems.

***The Food Potential of Australian Native Plants***, Deakin University, Proceedings of Conference held 3/1984.

***The Food Resources of Aborigines of SW Australia***, Meagher S., WA Museum, 1974.

***\*The Role of Trees in Sustainable Agriculture***, Greening Australia, 1997, 180pp.

A set of three work books available from Greening Australia demonstrating how farm forestry can control the problems which most directly affect agriculture, presenting the technique of whole farm planning. Describes the benefits of farm diversity, shelter belts and fodder. Relevant to anyone who would like to include native foods as a component of planning as the overall concept can be applied with minor species selection adjustment. Cost \$25.

***Trends and Issues in Adult Community Education***, A Case Study by Laurel Walker for the University of South Australia.

Discusses the aims of the Filsoll Reserve Aboriginal Horticultural Program funded by Levis and facilitated by Munno Para Skill Share, Laurel Walker and John McCarthy. The Study relates the success of the relationship between the horticultural facilitator and the students and the different approach used which included the use of Aboriginal food and medicinal plants and a combination of two different cultural practices. Contact: Munno Para Skill Share 112, Coventry Rd, Smithfield, Tel 08 8254 9111.

### **A.I.3. Internet sites and email addresses**

A number of Internet sites and email addresses were identified by the review of key literature. These are indicated below in alphabetical order by the name of the organisation, with \* indicating particularly relevant information sources.

*\*A Workshop on Information Technology Application in Agriculture*, Rupin Collage, Israel Dr Ehud Gelb, Ministry of Agriculture-Tel Aviv.

Email: [gelb@agri.huji.ac.il](mailto:gelb@agri.huji.ac.il) or [adiraz@ruppin.ac.il](mailto:adiraz@ruppin.ac.il)

#### ***Acres Australia***

[http://www.ozemail.com.au/~acresaus/acres\\_sub.htm](http://www.ozemail.com.au/~acresaus/acres_sub.htm)

#### ***ANCA books, posters and kits***

<http://www.anca.gov.au/about/products/salepub3.htm>

#### ***ANCA useful plants***

<http://www.anca.gov.au/plants/manageme/>

#### ***AgNet***

<http://agnet.com.au>

#### ***Australian foods from the bush***

<http://www.shopaustralia.com.au/shoptuck.html>

#### ***Australian Agricultural Web Site***

<http://www.ruralnet.com.au/AgriWeb/>

#### ***Australian Agricultural Organisations***

<http://agnet.com.au/org.html>

#### ***Australian seed and grain information from T J Teague (S.A.) Pty Ltd***

<http://www.tjt.com.au>

#### ***Agricultural search engine***

<http://www.agrisurf.com>

#### ***Agriweb***

<http://www.ruralnet.com.au/Agriweb/>

#### ***Australian agricultural topics***

<http://agnet.com.au/topics.html>

***\*Australian Bushfoods Magazine***

Email: bushfood@pronet.net.au

Five Issues. A publication providing updated information on industry contacts and a growers guide to species with some information provided by scientists/experts/enthusiasts. An interesting and well compiled magazine.

***Australian flora links***

<http://dove.mtx.net.au/~rosmci/industry.html>

***\*Australasian Ethnobotanical Foundation;*** Gareth Wise, Director

Email: solandra@bigpond.com.

***\*Australasian Tree Crops Sourcebook on-line***

<http://www.aoi.com.au/atcros/>

***Australian Native Bee Research Centre***

[anbrc@zeta.org.au](mailto:anbrc@zeta.org.au)

***\*Australian New Crops***

<http://www.uq.edu.au/~gagkrego>

Nine issues with a circulation of over 2500. Currently funded by RIRDC. Offers articles presenting interesting descriptions of new crops which includes numerous articles on bushfoods and excellent contacts to research information on all aspects of crop management and new methods of production. The information is extensive and provides valuable insight into information services related to establishing the Australian bushfood industry.

***Australian Agriculture Online***

<http://www.agriculture.net.au/>

***ABC Landline***

[www.abc.net.au/landline](http://www.abc.net.au/landline)

***Australian Plants Online***

[www.ozemail.com.au/~sgap](http://www.ozemail.com.au/~sgap)

***\*Australian Native Produce Industries (ANPI)***

[www.anpi.com.au](http://www.anpi.com.au)

***\*Australian National Botanic Gardens (Aboriginal trail)***

<http://155.187.10.12/anbg/aboriginal-trail.html>

Valuable information storage data base systems for all kinds of plant production, particularly related to propagation, cultivation -both in containers and in ground, pest and disease management and recording of research data. Contact Ben Wallace.

***Breaking Ground: A Resource Guide (for specialty crops)*** HSMP Press, 12a Stockbridge, University of Massachusetts, Amherst, MA 01003 USA. Publication available for \$US15

Email: will@mis.net

Web site: <http://www.pagestore.com/ideas/hi-index.htm>

***Blue Gum Fine Foods***

<http://www.users.bigpond.com/matterhorn.htm>

***Bush Food Plants for Northern NSW***

<http://nornet.nor.com.au/environment/greenwork/bfood.htm>

***\*Bush Tucker Supplies***

[www.bushtucker.com.au](http://www.bushtucker.com.au)

The development of the commercial side of the industry began with Vic Cherikoff the director of BTSA and has been the impetus behind the promotion of the concept. Many different sites to surf through covering a number of aspects of the industry.

***Cornucopia Nursery***

<http://users.mullum.com.au/~botanica>

***\*Central Lands Council (CLC):*** Contact Jock Morse

Email: [jmorse@clc.org.au](mailto:jmorse@clc.org.au)

Collating information on potential of commercial production of plants used by Central Australian Aboriginals and also involved in R&D into new crops and trials of them in the Alice Springs region.

***Centre For New Industries Development, Agriculture Western Australia***

Email: [tdunn@agric.wa.gov.au](mailto:tdunn@agric.wa.gov.au)

***\*Department of Agriculture WA,*** Kelly Jane Pritchard

Email: [kpritchard@agric.wa.gov.au](mailto:kpritchard@agric.wa.gov.au)

Bushfood activities manager carrying out much needed research into the native foods of WA.

***Directory for Botany***

<http://herb.bio.uregina.ca/liu/bio/idb.shtml>

***DI's Agricultural Links***

<http://www.wimmera.net.au/aghort/DisAg.html>

***\*DPI Home Page***

<http://www.dpi.qld.gov.au/dpinotes/index.html> (html#bushfoods)

***\*Dr Robert Fletcher***

Email: [r.fletcher@mailbox.uq.edu.au](mailto:r.fletcher@mailbox.uq.edu.au)

Home page: <http://www.uq.edu.au/~gagkrego>.

Is involved in the collation of the New Crops Newsletter funded by RIRDC, also carries out research on New Crops for Gatton Collage in Qld. Has completed a survey conducted to determine the sources of information on New Crops currently available in Australia.

***F@rming Online***

<http://www.rpl.com.au/farming/index.html>

**\*First Asian Conference for Information Technology in Agriculture.** Contact Secretary General: Seiichi Takigishi, Tokyo Office of the Japanese Society of Agricultural Informatics No .2 Shibasaki Bld.5F, 2-23-15 Kanda Sudacho; Chiyoda-ku, Tokyo Japan  
Email: [afita@jsai.org.jp](mailto:afita@jsai.org.jp)

***Food Values and Australian Bush Foods, Production of bushfoods***

<http://www.greenwork.org.au/bushfood.htm>

***\*Greening Australia***

<http://www.greenwork.org.au/bushfood.html>

Greening Australia have an extensive network of information and practical land management related projects throughout Australia, which includes research into native foods. Head office in Canberra should be contacted for those interested in following up this contact.

***Greening Australia nursery listing***

<http://www.greenwork.org.au/nursery.htm>

See Greening Australia

***GreenNet Australia***

<http://www.green.net.au>

***International ag links***

<http://www.ifas.ufl.edu/www/agator/html/agnonus.htm>

***International Society for Horticultural Science***

Email: [ishs@agr.kuleuven.ac.be](mailto:ishs@agr.kuleuven.ac.be)

Web site: <http://www.agr.kuleuven.ac.be/ishs/ord/ord1.htm>

**\*International Workshop:** Internet for Extension Services, Email: [alberese@inea.it](mailto:alberese@inea.it) or Guido Bonati, Email: [bonati@inea.it](mailto:bonati@inea.it), or Contact the Secretary INEA Federica Giralico Via Barberini, 36-00187 Roma, Italy. Tel 39 6 4785 6525, Fax 39 6 4741 984 - 483488, Email: [giralico@inea.it](mailto:giralico@inea.it).

A workshop held in September 1997, in Alberese, Grosseto, Italy, organised by INEA (National Institute of Agricultural Economics). Its aims were to assist the flow of information to farmers and rural regions using state of the art Internet services to provide real and measurable benefits to end users. Worth exploring the net for results of that conference.

**\*IUFoST 10th World Congress Oct 3-8, 1999.** The Secretariat 10th World Congress of Food Science & Technology, PO Box 1493 North Sydney NSW 2059. Ph 02 9959 4499, Fax 02 9954 4327.

Email: [iufost10@foodaust.com.au](mailto:iufost10@foodaust.com.au)

Web site: <http://www.foodaust.com.au/world.htm>

***\*Landcare Australia***

<http://ldcarefdn@peg.apc.org>

***Links to Other Sites***

<http://www.iinet.net.au/agriweb/>

***Medicinal Plants for Survival (Conservation of; Cultural and Intellectual Property rights)***, National Institute of Advanced Studies Indian Institute of Science Campus Anandanagar Bangalore, 560 012, India.  
Email: root@frlht.ernet.in  
Ph 91 80 333 6909 Fax 9180 333 4167.

***Methods of Growing Bushfoods***

<http://www.nor.com.au/community/organic/library/farmplan/bushtuck.htm>

***\*Native Herb Forum Website***

<http://www.scu.edu.au/schools/ncm/staff/michael/forum/index.html>

The native herb forum is an important development in exploring the uses of Australia's flora. Its aims are to positively influence the clinical use of Australian herbs and to ensure ongoing supplies by exploring their potential for cultivation.

***Native Plant Seedbank and Database***

Email: n.ashwath@cqu.edu.au

Central Queensland University research into germination and storage of native species carried out under NHT'S Bush Care program.

***New Uses Council***

Email: jharsch@rof.net

Web site: <http://ag.arizona.edu/OALS/NUC/NUCHome.html>

***\*New Crop***

<http://newcrop.hort.purdue.edu>.

An electronic information system that provides a window to new and speciality crops and coverage of activities in the Indiana Centre for New Crops and plant products. This accesses a welcome page that offers links to CropREFERENCE, a new crops bibliography; CropSEARCH, brief descriptions of hundreds of crops; FactSHEET, expanded descriptions of selected crops (including pictures); CropEXPERT, names and addresses of US contacts; NewcropNEWS, electronic copies of the Purdue New Crops News; and NewcropEVENTS, a list of events at the Indiana Centre.

***Oz Bush Garden***

[www.highway1.com.au/ozgarden](http://www.highway1.com.au/ozgarden)

***Online Global Garden***

<http://www.global-garden.com.au>

***\*Plant Breeders Rights***

<http://www.dpie.gov.au/agfor/pbr.html>

PBR is going to be an important issue for the native foods industry. For those interested in gaining an understanding of how it will affect this industry this is an important contact to follow up.

***Profiting From Agricultural Change 1998 Conference***, Agricultural Institute of Management in Saskatchewan (AIMS)

Email: AIMS@agr.gov.sk.ca

Web site: <http://www.agr.gov.sk.ca/saf/aimsres/pac98.htm>

***Quandong***

<http://www.silo.riv.com.au/SGAP/s-acu.html>

***Rubus-Ribes Symposium Australian Society of Horticultural Science***

Email: mcgregorg@knoxy.agvic.gov.au

***\*Rural Industries Research and Development Corp***

<http://www.dpie.gov.au/rirdc>

***RIRDC questionnaire***

<http://www.winshop.com.au/grovesc/userneed.htm>

***Southern Game Meat***

<http://www.sgm.com.au>

***\*SGAP Bibliographies***

<http://155.187.10.12/biblio/handbooks.html>

***Society for Growing Australian Plants (ACT Region)***

<http://www.anbg.gov.au/sgap>

***Tasting Australia***

<http://www.foodwine.com/food/egg/egg0597/bushtuck.html>

***Taste of the Bush***

<http://www.arts.unimelb.edu.au/amu/ucr/student/1997/silva/>

***Toona Essential Oils:***

[www.cooloola.com.au/toona-oils](http://www.cooloola.com.au/toona-oils)

***\*Teys McMahon Pty Ltd***

Email: [proplaw@powerup.com.au](mailto:proplaw@powerup.com.au)

Teys McMahon have experience with a range of agricultural investments and also have several publications which may be of some use for those operating in these areas in the native foods industry.

***\*The Role of Agricultural Information in Decision Making in Research and Practice,***

Kardinal-Dopfner-Haus, Freising, Germany, Conference held on June 2 to 5, 1998.

Email: [schlind@weihenstephan.de](mailto:schlind@weihenstephan.de)

Web site: [http://hal.weihenstephan.de/gbdl/Conference\\_98/registra.html](http://hal.weihenstephan.de/gbdl/Conference_98/registra.html)

For further information, contact Birgid Schindwein, Technische Universitat Munchen, Weihenstephan, 85350, Freising, Germany. Tel 49 8161 713 426, Fax 49 8161 714 409.

***The Sustainable Farming Connection***

<http://sunsite.unc.educonnection/forums.html>

***Useful plant products-Quandong:***

<http://www.biodiversity.environment.gov.au/plaants/manageme/maldong.htm>

***Wild Lime***

<http://www.silo.riv.com.au/SGAP-gla.html>

***\*Yuruga Nursery***

<http://www1.tpgi.com.au/users/zodpub/atp.html>

One of the leading nurseries in the production of tropical/rainforest bushfood species. This is supported by an in-depth knowledge of the cultivation of these species and the storing of, and access to, information that is required by many seeking to involve themselves in the industry.

## **A.I.4. Videos**

*Aboriginal Australia: A Bush Garden*, Filsoll Reserve, Adelaide, 1994, Caalma Productions, Alice Springs, NT.

*Bush Medicines*, John McCarthy, 1994, 37 Irrawong Rd, North Narrabeen.

A detailed account from a fascinating garden in Sydney's southern suburbs. Deals with the concept of bush medicines as being of value to healing our land as well as our physical and mental well being. Covers the indigenous and colonial uses of native medicines and the concept of bushfoods as medicines. Also shows how indigenous foods and medicines can be used in regeneration of degraded suburban bushland.

*Mayi Wiro - "Great Food"*; Angatja Video, PO Box 2482, Alice Springs, 5750.

*The Bunya: An Australian Nut with Potential*, David Noel, 1990, Tree Crops Centre, PO Box 27, Subiaco, WA, 6008.

An enthusiastic presentation of the bunya nut story in a very comprehensive and interesting video shot mainly in David's backyard. A much needed account of a resource that is still overlooked by the industry as well as land managers after sustainable land management solutions.

*Woman's Gathering and Hunting in the Pitjanjatjara Homelands*, Susy Bryce, Institute for Aboriginal Development (IAD), 1991, PO Box 2531, Alice Springs, NT, 0871.

A still picture trip with Aboriginal woman looking at the gathering of a variety of bushfoods. Shows the close link between bushfoods and the daily world of Anangu (Pitjanjatjara Aboriginal people).

## **A.I.5. Organisations involved in the bushfood industry**

A number of organisations were identified as involved in the bushfood industry. These are indicated below in alphabetical order by the name of the organisation, with \* indicating key organisations.

These organisations have been grouped into:

- General.
- Nursery suppliers.
- Bushfood processors.
- Buyers of bushfoods.

In some instances the same organisation is indicated under more than one of the abovementioned broad categories.

### **A.I.5.1 General**

#### ***\*Arid Zone Bush Tucker Project***

Steve Ross-Project Coordinator  
41-79 Crystal Street  
Broken Hill NSW 2880  
Tel 08 8087 9222/014 845 7732

#### ***\*ATSIC***

Head Office  
Canberra.

A possible source for database information on education and training. This could include Aboriginal involvement, particularly in many parts of rural Australia, and regarding projects related to Native Foods.

#### ***\*Australian Bushfoods Magazine***

Sammy Ringer- Editor  
38 Mountain View Road  
Maleny QLD 4552  
Tel 07 5494 3812  
Fax 07 5494 3506  
Provides five issues a year on the Australian bushfood industry.

#### ***\*Australasian Ethnobotanical Foundation***

Gareth Wise, Director  
PO Box 11  
West Ryde NSW 2114  
Tel 02 9804 7437

***\*Australian National University***

Dr. Mike Slee  
Canberra ACT 2601  
Tel 02 6249 2224

The ANU have been involved in a number of research projects relevant to the native foods industry such as propagation of oil producing Eucalyptus species from cuttings. Mike himself is working on breeding better selections of the Blue Mallee for its commercial oil potential.

***\*Australian Native Bushfoods Industry Council Ltd. (ANBIC)***

Denise Hart, ANBIC Ltd Company  
Secretary  
PO Box 309  
Civic Square ACT 2608, or  
Russell Holden, Tel 02 4733 8044 (NSW)  
Dion Dorward, Tel 08 8346 8022 (SA)  
Juleigh Robins, Tel 03 9587 8820 (VIC)

***\*Australian Native Produce Industries (ANPI)***

Andrew Beale  
PO Box 163  
Paringa SA 5340  
Tel 08 8595 1611  
Fax 08 8686 4511

One of the leading commercial companies in the industry, fully integrated and closely linked to the Red Ochre Native Foods restaurant chain.

***\*Australian Quandong Industry Association (AQIA)***

Daniel J. Mathews  
PO Box 236  
Upper Sturt SA 5156

AQIA was formed in 1983 with the aim of being recognised as the governing body that unites and assists quandong growers with research and development, quality assurance, marketing, other growers and customers. AQIA members believe that quandong production will grow into a multi-million dollar industry over the next 2-3 decades.

***\*Australian Rainforest Bushfoods Industry Association (ARBIA)***

Margaret A. Bailey  
PO Box 147  
Uki NSW 2484  
Tel 02 6679 9152  
Fax 02 6679 9179

A recently formed organisation. Could become an important industry body in a thriving area for native foods.

***Australian Food Plants Study Group (S.G.A.P.)***

Lenore Lindsay

323 Philip Avenue

Frenchville Qld 4701

Have a series of publications going back to about 1983 on the uses of native plants and people who have been researching various species and their potential throughout the country.

***Arid Land Growers Association (ALGA)***

Graham Herde

Nectar Brooks Station

via Port Augusta SA 5700

Tel 08 8634 7077

***Australian Native Bee Research Centre***

PO Box 74

North Richmond NSW 2754

Fax 02 4576 1196

Promoting the awareness, preservation and enjoyment of Australian Native Bees. Publishes 'Aussie Bee' four times annually.

***\*Bureau of Resource Sciences***

Canberra ACT

Helen Desmond

Tel 02 6272 5273

Helen is currently compiling a report on Aboriginal involvement in the native foods industry funded by ATSIC.

***\*Bushtucker Supply Australia***

Vic Cherikoff

PO Box B 103

Boronia Park NSW 2111

Tel 02 9817 1060

Fax 02 9817 3587

One of the first commercial suppliers of native food products. Offers a substantial range of products from around 36 different species as well as internet information covering many topics from recipes to processed product.

***\*Centre for Aboriginal Studies***

Canberra ACT

The institution has been involved in publications such as Tables of Composition of Australian Aboriginal Foods, Brand Miller, James, Maggiore, Aboriginal Studies Press, 1993.

***Centre for New Industries Development***

Agriculture Western Australia

Brian Stynes

3 Baron-Hay Court

South Perth WA 6151

Tel 08 9368 3940

Fax 08 9368 3791

Part of the New Industries program established in 1996 as an initiative of Agriculture WA in response to changes which were occurring in agricultural production, processing and marketing. Its aim is to develop industries which can contribute to the diversity and sustainability of the agricultural sector in WA.

***Central Lands Council (CLC)***

Jock Morse

PO Box 3321

Alice Springs NT 0871 or

75 Hartley Street

Alice Springs NT 0870

Tel 08 8952 9413

Fax 08 8952 9429

Collating information on potential of commercial production of plants used by Central Australian Aboriginals.

***Coen Regional Aboriginal Corporation***

Nth QLD

Tel 07 7060 1192

Fax 07 7060 1179

Have a small range of North Queensland open forest aromatic spices and oils unique to the region.

***\*Conservation Commission of the Northern Territory***

Glenn Wightman

Extensive information compilation of plants used by Aboriginal communities in the northern part of the NT. Includes the production of almost a dozen excellent publications on species used for food, medicines and implements.

***Committee of Regional Bushfood Organisations (CORBA)***

Linda Hamley

25 Duke Street

Windsor VIC 3181

Tel 03 9529 7346 (AH)

Tel 03 9659 4472 (BH)

Tel 014 489 036

This committee has been formed by regional bushfood organisations to represent the developing bushfood industry on a national level. The main purpose of CORBA is to ensure that the executives of regional organisations are kept in touch with each other to support the coalition of regions, act as lobbying group for all members, maintain coordination between regions and allow for more streamlined communication.

**\*CSIRO**

**Division of Horticultural Research**

Headquarters: GPO Box 350

Adelaide SA 5001

Tel 08 8363 8600 or

**Forestry and Forest Products**

QVT Canberra ACT 2601

Tel 02 6281 8211

Canberra ACT or

**Merbein Laboratory: Steve Sykes**

Private Mail Bag

Merbein VIC 3505 or

**Wildlife and Ecology**

Tom Irvine normally QLD based and G. Griffen

PO Box 84

Lyneham ACT 2602

Extensive research on Quandongs, Acacia species and Citrus Cultivars (contact Steve Sykes, Mildura CSIRO or ANPI).

**\*Department of Conservation and Land Management (CALM) WA**

50 Haymen Road

Como WA 6152

Currently involved in the commercialisation of native resources in WA and the publication of a series of 'Bush Books' which includes native foods information.

**Department of Primary Industries (DPI) QLD**

Tel 07 3239 3111

Involved in a number of native food research.

**Essential Oil Producers of Australia**

Richard Davis

PO Box 147

Pennant Hills NSW 2120

Tel 02 9979 9844 or 9484 1341

Fax 02 9979 9608 or 9481 8145

An association formed for Australian producers of natural essential oils and plant extracts. Publication of a newsletter is now underway reviewing workshops, seminars and conferences held over the last 3 years.

**Fraser Coast Essential Oils Association**

Tel 07 7123 0333

Fax 07 7123 0799

Assists in the growing and distillation of Australian Natives.

***\*Greening Australia (GA)***

Head Office: Canberra ACT

Tel 02 6253 3035

GA have considerable experience in information collation and dissemination as a national organisation. The Canberra head office provides an excellent overview of GA's role in the industry and their information service which even if not specifically about native foods is significant.

***Kelly Jane Pritchard***

Bush Foods Activities Manager

Department of Agriculture WA

Tel 08 9336 3440

Fax 08 9474 2450

***\*Kings Park Botanic Gardens***

Kingsly Dickson

Perth WA 6000

Tel 08 9480 3600

Extensive research into WA native plant species which includes some recent work on bushfoods.

***\*Monash University, Melbourne***

Dr Beth Gott

Extensive compilation of plants used by South-east Australian Aboriginals including the formation of a database with disk information on sale.

***\*National Association for Sustainable Agriculture, Australia Ltd (NASAA)***

PO Box 768

Stirling SA 5152

Tel 08 8370 8455

The leading organic growers certification body. Many native food growers are interested in following the path of non-chemical production.

***Native Food Growers Group Incorporated***

Elizabeth Shannon

Kelloshiel

Hargraves NSW 2850

A recently formed rural group that have raised their own funding and are planning to trial quantities of native food plants in 5 different regions west of the Hunter district in NSW.

***Native Plant Seedbank and Database***

Dr Nanjappa Ashwath

Primary Industries Research Centre

School of Biological and Environmental Sciences

Central Queensland University

Rockhampton QLD 4702

Tel 07 4930 9595

Fax 07 4930 9209

***Native Seed Savers Network***

Greening Australia  
PO Box 165  
Doonside NSW 2767  
Tel 02 4578 4390

A community based project established to facilitate the conservation of bio-diversity in the Hawkesbury-Nepean Catchment.

***\*Nindethana Seed Service***

PO Box 2121  
Albany WA 6332  
Tel 08 9844 3533  
Fax 08 9844 3573

One of the largest suppliers of Australian native seeds with over 3,000 species available. Information regarding fruiting times, mechanisation used to collect food bearing species, viability of seed, improved geno-types or heavy and consistent producing selections is information of value to seed collectors and the native food industry.

***Harvest Seeds***

325 McCarrs Creek Rd  
Terrey Hills NSW 2084  
Tel 02 9450 2699  
Fax 02 9450 2750

***\*Plant Breeders Rights***

PO Box 858  
Canberra ACT 2601  
Tel 02 6272 4228  
Fax 02 6272 3650

Provides important information on the legalities related to plant breeding. This will include regulations involving hybridising, improved selections or cultivars and will prove extremely important to any of the leading nurseries involved in plant propagation or breeding. This information could assist in overcoming any controversy currently developing within the industry regarding a number of aspects of this subject.

***Queensland Bushfood Cooperative (QBC)***

David Cook  
44 Palm Street  
Maleny QLD 4552  
Tel 07 5429 6300, or contact  
John King, Tel 07 3284 2202  
Janelle Turner, Tel 07 5429 6300

***Rainforest Seed Collective***

Yahana Treweeke  
Private Mail Bag  
Bellingen NSW 2454  
Tel/Fax 02 6655 2233

***\*Red Ochre Restaurants***

Andrew Fielke  
Goodger Street  
Adelaide SA 5000

The leading native foods restaurant in Australia. Works closely with ANPI to assist in the cultivation of desirable species.

***\*Rural Industries Research and Development Corporation (RIRDC)***

David Evans  
PO Box 4776  
Kingston ACT 2604  
Tel 02 6272 4593

***Seed Savers Network***

Diedre  
PO Box 975  
Bryon Bay NSW 2481  
Tel/Fax 02 6685 6624

Supply mainly exotic seed with some native food species. Have been involved for a long time (10 -12 years).

***\*Society for Growing Australian Native Plants (SGAP)***

NSW Sector  
W. Payne  
860 Henry Lawson Drive  
Picnic Point NSW 2213

SGAP has access to extensive research information on native plant species covering the last 20-30 years perhaps longer. Many members have been responsible for providing valuable information to leading players currently involved in the native foods industry.

***\*Southern Bushfood Association (SBA)***

Gil Freeman  
21 Smith Street  
Thornbury VIC 3071  
Tel 03 9416 7150

A recently formed organisation. Carried out a survey in 1996 and produces a regular newsletter.

***Southern Vales Bushfood***

Michael Brandwood  
PO Box 344  
Clarendon SA 5157  
Tel 08 8383 6481

***\*Sydney University***

Centre for Nutrition  
Jenny Brandt

Extensive compilation of nutritional information on native foods. Includes the release of a book detailing the information obtained from their work.

***\*Teys McMahon Pty Ltd (Property Lawyers)***

Langton Clarke  
GPO Box 1279  
Brisbane QLD 4001  
Tel 07 3831 8999

Teys McMahon have experience with a range of agricultural investments and also have several publications which may be of use for those operating in these areas in the native foods industry.

***The Food Forest***

PO Box 859  
Gawler SA 5118  
Tel/Fax 08 8522 6450

An excellent example of property planning using a number of different land management techniques including native foods and permaculture. Not only do they produce certified organic produce they also offer a range of practical training workshops, permaculture design courses including native foods. Tours are organised for interested parties.

***\*Total Earth Care/Sydney Native Nursery***

37 Irrawong Road  
North Narrabeen NSW 2101  
Tel 02 9979 8812  
Fax 02 9979 8813

Has extensive experience in the native foods industry through research into cultivation, propagation, new crop selection bush regeneration/revegetation and whole farm planning, seed collection and a consultancy service. Offers plant material of indigenous geno-types as well as plants for farm, forestry and native foods and fodder.

***\*Tree Crops Centre***

David Noel  
PO Box 27  
Subiaco WA 6904  
Tel 08 9388 1965  
Fax 08 9388 1852

An excellent resource provider for those requiring literature/information on everything edible/useable and the methodology of how to cultivate it including some coverage of native species.

***\*University of Tasmania***

Chris Read  
Currently researching the leaf extracts of *Tasmania lancoelata*, Mountain Pepper.  
Professor Robert Menary is also investigating its potential. He works at the same institute. Tel 03 6226 2999.

### **A.I.5.2 Nursery suppliers**

#### ***\*Australian Native Produce Industries (ANPI)***

Andrew Beale  
PO Box 163  
Paringa SA 5340  
Tel 08 8595 1611  
Fax 08 8686 4511

#### ***Burringbar Rainforest Nursery***

Upper Burringbar Rd  
Burringbar NSW 2483  
Tel/Fax 02 6677 1088

#### ***Bush Nuts Native Nursery***

64 Syndicate Rd  
Tallebudgera Valley QLD 4228  
Tel/Fax 07 5533 8105

#### ***Cornucopia Nursery***

55 Station Street  
Mullumbimby NSW 2482  
(See Web site details under internet contacts)

#### ***Fairhill Native Plants and Botanic Gardens***

Fairhill Road  
Yandina QLD 4561  
Tel 07 5446 7088

The nursery offers a huge range of native plants including a comprehensive range of bushfood species and books and literature.

#### ***\*Forbidden Fruits Nursery***

Mcauleys Lane  
Myocum  
Mullumbimby NSW 2482  
Tel 02 6684 3688

All plants are propagated using biodynamic and organic methods of production. A wide range of native food species mainly dealing in rainforest species.

#### ***Limpinwood Gardens Nursery***

Limpinwood Valley Road via Chillingham  
NSW 2484 (Murwillumbah)  
Tel 02 6679 3353  
Fax 02 6679 3143

Has been growing native plants since 1978 and establishing a stock garden as well. Now promotes native foods through an occasional newsletter and some selected varieties of core species.

***\*Nursery Industry Association of NSW Limited***

NIAN President  
Wayne Tapping  
Tel 02 9679 1472

***South Coast Flora***

146 Dignam's Creek Rd  
Via Cobargo NSW 2550  
Tel 02 6493 6747

Carry a range of temperate/cool climate native food species.

***St Kilda Indigenous Nursery***

525 Williamstown Road  
Port Melbourne VIC 3207  
Tel 03 9645 2477

***\*Total Earth Care/Sydney Native Nursery***

37 Irrawong Road  
North Narrabeen NSW 2101  
Tel 02 9979 8812  
Fax 02 9979 8813

Has extensive experience in the native foods industry through research into cultivation, propagation, new crop selection bush regeneration/revegetation and whole farm planning, seed collection and a consultancy service. Offers plant material of indigenous geno-types as well as plants for farm, forestry and native foods and fodder.

***Yeppoon Rainforest Nursery***

PO Box 109  
Yeppoon QLD 4703  
Tel/Fax 07 4939 3963

***\*Yuruga Native Plants***

Kennedy Highway  
Walkamin QLD 4872  
Tel 07 4093 3826

Specialist growers of quality native plants and North Queensland native food species.

**A.I.5.3 Bushfood processors**

***\*Arnhem bushtucker***

PO Box 39111  
Winnellie NT 0821  
Tel 08 8941 9930  
Fax 08 8941 9942

***\*Australian Native Produce Industries***

87 Harrison Road  
Dudley Park SA 5008

Tel 08 8346 3337  
Fax 08 8346 3387

***\*Australian Native Foods/Bushfoods of Australia***

Brian Milgate  
Tel 07 4946 4433

***\*Bushtucker Supply Australia***

Vic Cherkoff  
PO Box B 103  
Boronia Park NSW 2111  
Tel 02 9817 1060  
Fax 02 9817 3587

***Edna's Table Restaurant***

Level 2 MLC Centre  
Cnr Castlereagh/King St  
Sydney NSW 2000  
Tel 02 9231 1400

***\*Essential Ingredients***

Contact Kerry Anderson  
4 Australia Street  
Camperdown NSW 2050  
Tel 02 9550 5477  
Fax 02 9550 5636

***\*Gundabluey Bushfoods***

Paul James

***\*Kullanteenee Bush Tucker: The Bush Tucker Fella***

Alan Vousden  
PO Box 6  
Campbelltown NSW 2560  
Tel 0418 118 845

***\*More Than A Morsel***

Catering and Cafe  
Unit 41/566 Gardeners Road  
Alexandria NSW 2015  
Tel 02 8338 0055

***Muntari: Wild Food Plants of Australia***

Main Nth Road  
Rhynie SA 5412  
Tel 08 8847 2542  
Fax 08 8847 2540

***\*Red Ochre Restaurants***

Andrew Fielke  
Goodger Street  
Adelaide SA 5000  
Tel 08 8212 7266

A leading native foods restaurant in Australia, and works closely with ANPI to assist in the cultivation of desirable species.

***\*R&K Horner***

1 Grundy Street  
Alice Springs NT 0870  
Tel/Fax 08 8952 8583

***\*Robins Foods***

Juleigh Robins  
Alpine Bushfoods  
3 Finlason Street  
Mansfield VIC 3722  
Tel 03 9587 8820

***Walkabout Foods***

Tel/Fax 08 8365 0074

**A.I.5.4 Buyers of bushfoods**

***ARBIA***

PO Box 6407  
South Lismore NSW 2480  
Tel /Fax 02 6689 7433

***Arid Land Growers Association (ALGA)***

can be contacted through the president, Brenton Zubrinich  
Tel 08 8643 6102

***\*Australian Native Produce Industries (ANPI)***

Andrew Beale  
PO Box 163  
Paringa SA 5340  
Tel 08 8595 1611  
Fax 08 8586 4511

One of the leading commercial companies in the industry, and closely linked to the Red Ochre restaurant chain.

***\*Arnhem Bushtucker***

PO Box 39111  
Winnellie NT 0821  
Tel 08 8941 9930  
Fax 08 8941 9942

Manufacturers of jams and bottled products with colourful labels, has 3 separate enterprises being produce supply through Arnhem Bush Tucker, an outdoor restaurant 'Dining Under The Stars', and a catering service under the name of Australian Gourmet Wild Foods.

***\*Bushtucker Supply***

Vic Cherikoff  
482 Victoria Road  
Gladesville NSW 2111  
Tel 02 9817 1060  
Fax 02 9817 5587

***\*Australian Native Foods/Bushfoods of Australia***

Brian Milgate  
Tel 07 4946 4433

***Byron Bay Native Produce***

Erika Birmingham  
Tel/Fax 02 6687 1087

***Dinkum Fare and Wartook Cafe***

David and Judith Thompson  
Grampians VIC  
Tel 03 5383 6305

Produce a small range of wattleseed products and serve bushfood meals in their cafe.

***Francesca's Bush Spices***

Siena Pty Ltd  
77-79 Orsmond Street  
Hindmarsh SA 5007  
Tel 08 8346 9131  
Fax 08 8346 9181

Currently producing a range of the 6 main spices/herbs/condiments professionally packaged in spice shakers for easy use.

***\*Jean-Paul Brunteau***

Riberries Restaurant  
Bourke Street  
Sydney NSW 2000  
Tel 02 9361 4929

Jean-Paul has been the leading chef and inspiration behind the initial development of the industry, he has recently released "Tukka " an interesting and practical native food publications. He has been both passionate and innovative in his approach to the concept and his work has enabled more chefs/caterers and restaurateurs to become involved in the industry.

***\*Paul James***

Gundabluey Bushfoods

8 Narraburra Place  
Mt Colah NSW 2079  
Tel 02 9482 7305  
Fax 02 9482 2690

In the business for 15 years and provides a quality supply of herbs, spices and the originator of wattleseed "mud" for easy use by the general public. Also operates through Ribberries restaurant, see below.

***\*Longreach Bush Tucker***

Wendy/David Phelps  
135 Wren Street  
PO Box 51  
Longreach QLD 4730  
Tel/Fax 07 7658 3873

Wholesalers, distributors and promoters, specialising in dry climate species with additional value added products .

**Ozcream**

Sandy Jay  
21B Sydenham Road  
Norwood SA 5067  
Tel 08 8362 1717/ 0419 330 139

***\*Prickles Restaurant***

Greg Green  
Fremantle WA 6160  
Tel 09 9336 2194

***\*Quandong Cafe and Bush Bakery***

Bob and Sue Tulloch  
Copley (Northern Flinders Ranges) SA 5732  
Tel 08 8675 2683

Approximately 14 years in the business, specialising mainly in Quandongs but are interested in other products. Generally buy from Aboriginal communities and produce some of their own.

***Queensland Bushfood Cooperative***

182 Witta Road  
Maleny QLD 4552  
Tel/Fax 07 5494 4970

***R.A.H Hospitality/Bush Tucker Distributors***

Stacey Carpenter  
Penrith NSW 2750  
Tel 02 9630 6427 (9am-5pm)  
047 338 064

Recently established suppliers and growers.

***\*Robins Foods***

Juleigh Robins  
Alpine Bushfoods  
3 Finlason Street  
Mansfield VIC 3722  
Tel 03 9587 8820

Juleigh is another pioneer in the industry and has recently released an excellent recipe book which includes species uncommon in the industry.

***\*Red Ochre Restaurants***

Andrew Fielke  
129 Gouger Street  
Adelaide SA 5000  
Tel 08 8212 7266

The leading native foods restaurant in Australia, and works closely with ANPI to assist in the cultivation of desirable species.

***\*Shoalmarra Quandong Products***

Ben Macnamurra  
Via Whites River Road  
PO Box 21  
Tumby Bay SA 5605

Specialising in Quandongs/cut flowers as a grower and value adding producer/exporter; generally source and cultivate their own fruit.

***Southern Vales Bushfood Growers Group***

Michael Brandwood  
PO Box 344  
Clarendon SA 5157  
Tel 08 8383 6481  
Taste of Australia  
Niche Solutions International Pty Ltd  
2 Railway Walk  
Brighton Beach VIC 3188

Manufacturers of biscuits with native food ingredients including wattleseed and lemon myrtle shortbread.

***\*The Australian Macadamia Society***

Suite 5/76 Woodlark Street  
Lismore NSW 2480  
Tel 02 6622 4933  
Fax 02 6622 4932

Generally considered an outsider to the industry but perhaps offers a successful model which may provide valuable information for current industry operators. May be keen to actually start utilising a variety of bushfood products many of which are extremely compatible with macadamias, particularly wattleseed.

***Triak Beverages Pty Ltd***

1219 High Street

Armadale Vic 3143+

Tel 03 9822 9100

Fax 03 9822 4108

Producers of the Witjuti label of Australian Bush Tucker products with a few unique lines including the witjuti grub in the bottle of grog. Nick Schlebnikowski is the main contact for Triak and has been responsible for some innovative value adding using native food ingredients.

***Walkabout Foods***

Tel/Fax 08 8365 0074

Suppliers and exporters of a small range of native gourmet foods.

# Appendix II

## Individuals and organisations contacted for consultation

A number of individuals and organisations were contacted during the consultation process. Those that provided feedback are indicated in **bold**.

### **A. Vousden**

Contact Person: Allan Vousden

Tel 09 1811 8845

### **Arid Zone Bush Tucker Project**

Contact Person: Steve Ross (Project Coordinator)

Tel 08 8087 9222

### **Arid Lands Growers Association (ALGA)**

Contact Person: Brenton Zubrinich

Tel 08 8643 6102

### **Arid Lands Growers Association (ALGA)**

Contact Person: Graham Herde

Tel 08 8634 7077

### **Australian Bushfood Federation Inc**

Contact Person: Sibylla Hess-Bushmann

Tel 02 6689 7433

### **Australian Bushfoods Magazine**

Contact Person: Sammy Ringer (Editor)

Tel 07 5494 3812

### **Australian Institute of Aboriginal and Torres Strait Islanders Studies**

Contact Person: Helen Desmond

Tel 02 6272 5273

### **Australian National Botanic Gardens (ANBG)**

Contact Person: Ben Wallace (Director - Living Collections)

Tel 02 6250 9524

**Australian Native Bushfood Industry Council (ANBIC)**

Contact Person: Caroline Graham  
Tel 08 8821 3565

**Australian Native Foods/Bushfoods of Australia**

Contact Person: Brian Milgate  
Tel 07 4946 4433

**Australian Native Produce Industries (ANPI)**

Contact Person: Andrew Beale  
Tel 08 8595 1611

**Australian Quandong Industry Association (AQIA)**

Contact Person: Daniel J. Mathews  
Tel 08 8648 5167

**Australian Rainforest Bushfood Industry Association (ARBIA)**

Contact Person: Sibylla Hess-Bushmann  
Tel 02 6689 7433

**Australian Rainforest Bushfood Industry Association (ARBIA)**

Contact Person: Stanley Jackson  
Tel 02 6689 7433

**Billabulla**

Contact Person: Kate Mildner  
Tel 02 6847 4614

**Bureau of Resource Sciences**

Contact Person: Helen Desmond  
Tel 02 6272 5273

**Bush Tucker Supply Australia**

Contact Person: Vic Cherikoff  
Tel 02 9817 1060

**Byron Bay Native Produce**

Contact Person: Erika Birmingham  
Tel 02 6687 1087

**Central Lands Council (CLC)**

Contact Person: Jock Morse  
Tel 08 8952 9413

**Centre for New Industries Development Dept of Agriculture WA**

Contact Person: Kelly Jane Pritchard (Bush Foods Project Manager)  
Tel 08 9368 3440

**Coen Regional Aboriginal Corporation**

Contact Person: Annalies Voorthuis

Tel 07 4060 1192

**Committee of Regional Bushfood Organisations (CORBA)**

Contact Person: Linda Hamley

Tel 03 9529 7346

**Conservation Commission of the Northern Territory**

Contact Person: Glenn Wightman

Tel 08 8952 1930

**Country Harvest**

Contact Person: Josef Zehnder

Tel 07 5499 9255

**CSIRO Canberra Office**

Contact Person: Wendy Parsons (Senior Communicator)

Tel 06 6276 6615

**CSIRO Division of Horticultural Research**

Contact Person: Graham Griffen

Tel 08 8363 8600

**Daimaru Australia**

Contact Person: Simone Powell

Tel 03 9660 6601

**Defiance Milling Company Pty Ltd**

Contact Person: Terry MacMahon

Tel 1 300 369 869

**Department of Conservation and Land Management (CALM)**

Contact Person: Noel Nannup

Tel 08 9432 5118

**Dinkum Fare**

Contact Person: David and Judith Thompson

Tel 03 5383 6305

**Essential Oil Producers Of Australia**

Contact Person: David Johnson

Tel 02 9979 9844

**Fairhill Native Plants and Botanic Gardens**

Contact Person: Nick Hansa

Tel 07 5446 7088

**Francesca's Bush Spices / Siena Pty Ltd**

Contact Person: Francesca  
Tel 08 8346 9131

**Greening Australia (GA)**

Contact Person: Anna Marsden  
Tel 06 6253 3035

**Greening Australia (GA)**

Contact Person: Vanessa Elwell-Garvins  
Tel 06 6253 3035

**Greening WA**

Contact Person: Phil Ballamy  
Tel 08 9046 5187

**H. Russ**

Contact Person: Helen Russ  
Tel 02 6888 7778

**Kings Park Botanic Gardens**

Contact Person: Kingsly Dickson  
Tel 08 9480 3600

**Longreach Bush Tucker**

Contact Person: Wendy and David Phelps  
Tel 07 4658 3873

**Monash University, Melbourne**

Contact Person: Dr Beth Gott  
Tel 03 9905 4000

**National Association for Sustainable Agriculture, Australia Ltd (NASAA)**

Contact Person: Operator  
Tel 08 8370 8455

**Native Foods SA**

Contact Person: Dion Dorward  
Tel 08 8346 8022

**Nectarbrook Discovery Plantation**

Contact Person: Graham Herde  
Tel 08 6437 077

**Nindethana Seed Service**

Contact Person: Peter Lucumbe  
Tel 09 9844 3533

**Northern Rivers Bushtucker Foods**

Contact Person: Larry Gens  
Tel 07 4936 3607

**NSW National Parks and Wild Life Service**

Contact Person: Roger Good  
Tel 02 6298 9718

**Plant Breeders Rights**

Contact Person: Katherine Dawes-Read  
Tel 02 6272 4228

**Plant Breeders Rights**

Contact Person: Tanvir Hossin (Home Page Administrator)  
Tel 02 6272 4228

**Polyculture Plantation**

Contact Person: Tony and Fiona George  
Tel 08 8556 9151

**Prickles Restaurant**

Contact Person: Greg Green  
Tel 09 9336 2194

**Quandong Cafe and Bush Bakery**

Contact Person: Bob and Sue Tulloch  
Tel 08 8675 2683

**Queensland Bushfood Cooperative**

Contact Person: Basically Wild  
Tel 07 5494 4970

**Red Ochre Restaurants**

Contact Person: Andrew Fielke  
Tel 08 8232 2776

**Robins Bush Foods**

Contact Person: Juleigh Robins  
Tel 03 9326 6188

**S. Ross**

Contact Person: Stephen Ross  
Tel 08 8087 8023

**Shoalmarra Quandong Products**

Contact Person: Ben Macnamurra  
Tel 08 8688 2546

**Southern Bushfood Association (SBA)**

Contact Person: Gil Freeman  
Tel 03 9416 7150

**Southern Vales Bushfood Association (SVBA)**

Contact Person: Michael Brandwood  
Tel 08 8383 6481

**T. Sharley**

Contact Person: Tony Sharley  
Tel 08 8595 5481

**Teys McMahon Pty Ltd**

Contact Person: Langton Clarke  
Tel 07 3831 8999

**Thankakali Aboriginal Corporation**

Contact Person: Daphne Hall  
Tel 08 8087 6111

**Total Earth Care / Sydney Native Nursery**

Contact Person: John McCarthy  
Tel 02 9979 8812

**Tree Crops Centre**

Contact Person: David Noel  
Tel 08 9388 1965

**Triak Beverages Pty Ltd**

Contact Person: Nick Schlebnikowski  
Tel 03 9822 9100

**University of Adelaide: Geographic and Environmental Studies**

Contact Person: Ken Dwyer  
Tel 08 8303 4383

**University of Queensland - Australian New Crops**

Contact Person: Rob Fletcher  
Tel 07 5460 1111

## **Appendix III**

**Questionnaire used for consulting with the bushfood industry on the bushfood industry database (this questionnaire was provided together with background information shown in Appendix IV)**

# Questionnaire

## General

Could you please provide some contact details

Name (First name, Surname): \_\_\_\_\_

Address (Actual): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Address (Postal): \_\_\_\_\_  
(if different)

\_\_\_\_\_

Tel: (     ) \_\_\_\_\_

Fax: (     ) \_\_\_\_\_

E-mail: \_\_\_\_\_

Could you please briefly describe the nature and extent of your involvement in the bushfood industry:

(e.g. quandong grower with 11ha operation, or restaurant that was using bushfoods as the focus of the business, etc.).

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

What sources of information on the bushfood industry do you use now:

- Textbooks on particular areas of the industry (please give additional comments if you wish).
- Magazines e.g. Australian Bushfoods Magazine (please give additional comments if you wish).
- Electronic (please give additional comments if you wish).
- Other (please give additional comments if you wish).

\_\_\_\_\_

## Question 1

Do you think you could benefit from more comprehensive information (such as a database) on the Australian bushfood industry?

Yes

No (if answer is 'no' then you may stop completing the questionnaire at this point as the remainder of the questionnaire deals with additional detail).

**Question 2**

Is a database format a good way of addressing the industry's information needs?

Yes

No

Don't know

Comments:

---

---

---

**Question 3**

Which group in the bushfood industry do you think is the likely user for such a database?

Please tick as many as you think appropriate.

growers, producers and harvesters.

processors and manufacturers.

wholesalers.

retailers including restaurants.

potential investors (in growing, manufacturing, wholesale/retailing).

researchers.

government agencies.

general public.

other.

Please expand your comment if you wish.

---

**Question 4**

What type of information do you think would be of most use to you and the user group(s) you identified above.

**A** A list of information sources for different industry segments (like a specialised yellow pages).

Individual

Industry

Please rate 1 - 5

1 = not important

3 = moderately important

5 = very important

**OR**

**B** Technical information on different industry activities (like an encyclopedia containing information on cultivation, harvesting, processing, manufacture, preparation and consumption).

Individual

Industry

Please rate 1 - 5

1 = not important

3 = moderately important

5 = very important

**Question 5**

Please rank in order of importance the activities of the industry which would benefit from such a database.

cultivation and production

harvesting

processing

manufacture

preparation

consumption

other (please specify: e.g. research and development, specialised equipment, etc.).

Comments:

---

**Question 6**

What form would you find most useful for such a database? - (select more than one if desired).

- Printed as a bound book.
- Printed as a loose-leaf folder.
- Printed as a series in a magazine.
- Electronic on disk.
- Electronic on CD-ROM.
- Electronic on the internet.
- Other (please specify).

**Question 7**

Would you be willing to use and pay for all or part of such a database?

- No
- Yes (for part or all of such a database)

**Question 8**

If the answer were 'yes' to the above question, then by what means would you be willing to pay?

- One-off basis (e.g. for a bound book), and if so, then what level of payment would you be willing to pay? You may provide a range or a number for \$ \_\_\_\_\_

**OR**

- Subscription basis, and if so, then what level of payment would you be willing to pay per month? You may provide a range or a number for \$ \_\_\_\_\_

**OR**

- Some other basis (e.g. per use for a specific part of the information).

Comments:

---

---

---

**Question 9**

Are there other comments that you would like to make, or that this questionnaire needs to address?

Comments:

---

---

---

## **Appendix IV**

**Background information used in consulting with the bushfood industry on the bushfood industry database (this background information was provided together with questionnaire shown in Appendix III)**

## **Bushfood Industry Database**

Atech is undertaking a RIRDC-funded research project to investigate the need for a database to store and promulgate information for and about the Australian Bushfood Industry. If the project identifies sufficient industry support for such a database, the researchers will develop specifications for a database that meets the identified requirements and provide a strategic plan for its development and implementation.

### **Objectives of the research project**

This project is intended as part 1 of a two-part process. Part 1 will address an identified market failure in information in this young industry to find an agreed industry preference for an information system or database, and detail the agreed preference in the form of a specification and development strategy.

### **Background and potential benefits to industry**

Previous research identified market failure in information as a key constraint on the growth potential of the Australian Native Bushfood Industry (See ANBIC (1996) *Business and Marketing Paper* and RIRDC (1997) *Prospects for the Australian Native Bushfood Industry*). This proposal is an essential first step in addressing that identified impediment to growth.

The proposal relates to the RIRDC (1997) *R&D Plan for the Australian Bushfood Industry 1997-2001 (Third draft)*. It directly addresses objective 5 (enhancing the human capital of the industry) but also has the potential to contribute significantly to the Plan's other objectives.

The potential benefits are a lower cost of addressing an important growth impediment, and a more certain, viable and workable database strategy supported by the industry. These benefits may accrue when and if the database strategy is implemented as a second stage project. However, the process of research for part 1 might indirectly provide benefits by improving industry awareness of means to address one of its major perceived growth constraints.

### **Research strategies and methodology**

The strategy for part 1 is to combine expertise in database and information systems with the detailed requirements of the industry participants. Thus, jointly determine workable solutions that will be commercially valuable to the participants both individually and collectively. The process involves two steps.

The Atech Group is currently in the process of developing an issues/information paper. The paper will cover technical, economic and industry specific aspects of a bushfood industry database and will outline alternative strategies. When complete, the paper will be distributed to key industry representatives with a short questionnaire. Shortly after distributing the issues paper, the Atech Group will contact the representatives to discuss the database characteristics that meet their need. This will enable the study team to

determine solutions that meet these needs individually and collectively. Part of the consultation process will be to determine the degree of financial support likely to be forthcoming from industry for ongoing maintenance of the database. Once this part of the consultation process has been completed, the Atech Group will develop draft specifications for the database, specifying structure, content, administrative details, development and financing strategies, etc.

### **Communications/adoption/commercialisation strategy**

The project is fundamentally a communications study. It will specify adoption and commercialisation strategies for an industry-supported database. The key industry bodies will be assisted where appropriate to advise their members of the project and ultimately its findings. The team wants to maintain close links with all levels of the industry throughout the study. If industry members wish to find out more about the study, please contact the principal investigator, David Tait at Atech Group, 42 Jaeger Circuit, Bruce ACT 2617, Tel 02 6251 3368 or Fax 02 6251 3060.

### **About the Atech Group**

The Atech Group is a company that provides consultancy services to government and industry. The company specialises in projects involving environmental management, economic analysis and information management, either individually or in combination.

# Appendix V

## Summary of consultation: a paper provided to respondents for any additional comments following the consultation process

### Outline of consultation

The consultation explored the bushfood industry's requirements for a database. The purpose of the database is to address information deficiencies that hinder the growth of the industry. These information deficiencies were identified in previous RIRDC studies.

### Who was consulted

The study team aimed to consult with the main industry players, and a selection of other stakeholders. The stakeholder selection sought to include at least one representative from each of the diverse groups that form the industry.

### Form of the consultation

The framework for the consultation was based on a nine point questionnaire. However the detail of the discussion depended on the particular role played by the organisation, and its particular interest in the industry. Organisations differ in the benefits they may derive from an Australian Bushfood Industry Database, and their willingness and ability to contribute to one.

The grower/harvester members (i.e. the bushfood suppliers) require that the database supply their need for critical information. A successful database will increase returns to supplier members using the database. These members appear willing to contribute to on-going running costs, although the initial establishment costs may have to be met by government.

Some of the larger industry players may need to assess how a bushfood industry database would impinge on their operations. They have established their own information chains, and are not pressing for a bushfood industry database. For them, the impact of bushfood industry database is uncertain. In fact, the potential risks (an inappropriate form could damage not only the emerging bushfood market but also their business) could outweigh any benefits. However, if the database took the form of an appropriately-designed, interactive, dynamic internet site, then we expect these players would see two-way hyperlinks as mutually beneficial.

A wide range of service providers exchange information with the bushfood industry. These organisations include RIRDC, departments of agriculture, various universities, CSIRO, Plant Breeder Rights at the Commonwealth Department of Agriculture, Fisheries and Forestry, botanic gardens and various native nurseries, as well as Australian native seed suppliers, food processors and the support organisations for the traditional land owners. Many of these organisation have adopted computer networking technologies for both internal and external information exchange, and are increasingly moving towards web-based strategies. For example, the fastest way to get information on Plant Breeder Rights is to visit the web site, and possibly lodge an application for any service/information required. These service organisations would certainly support a bushfood industry database with hyperlinks, enabling fast two-way provision of information. However, they generally have a large range of clients to support, and so would not generally provide special support services to the bushfood industry.

Within each of the above groups, there is a further diversity of interest in the database. There is also a limited ability to use newer database technologies (for example, many growers, producers and harvesters do not have ready access to internet technologies).

The consultation was structured to explore the needs of these different groups.

## Key findings

### **Lack of information hampering industry growth**

All members of the bushfood industry agreed that information deficiencies are hindering industry growth - growers, producers and harvesters were uncertain not only on the availability of new types of bushfoods and what they might offer, but also on the risks of further investment in the dozen or so bushfoods that have been commercialised at present.

Despite this need for information, many suppliers felt that the deficiencies in information could not be easily meet by a database. For example, some bushfood growers, producers and harvesters want price information - they would not want to increase investment without it. However, while there are many bushfood suppliers, there are few buyers. Buyers do not publicise prices, partly because of competitive pressures. Therefore many in the industry doubt whether useful price information can be obtained for the database. Other useful commercial information is similarly tightly held. Grower, producer and harvester groups could pool price information to get averages while preserving confidentiality, but this requires cohesion and trust between all growers of the same food, and this is not always a realistic expectation. Nevertheless, the study team believes that grower, producer and harvester groups may be able to assist by collecting and pooling information, perhaps only on production, and making it available in summary form to members, possibly on a subscription or user-pays basis.

Another problem was that practical “how to” type know-how on commercial practices for bushfoods was often limited - and those with such information are unwilling to share it without some form of recompense. If such information were distributed in a publicly

available database, it would immediately be freely available to all. In consequence, those with the know-how, especially for newer bushfood varieties, may be unwilling to contribute it to the bushfood industry database.

### **Who would benefit?**

The consultation suggested that all organisations and individuals with an interest in bushfoods could benefit from a bushfood industry database. These include potential users, including the consumers, tourists, potential growers, restaurants interested in enhancing their menus, wholesalers, and exporters. However, of the beneficiaries, only the grower, producer and harvester groups would consider any financial contributions to support the ongoing costs of the database. Many of the larger organisations in the bushfood industry have their own private sources of supply, and can, if desired, supplement these with publicly available directories (i.e. Telecom's yellow pages – available on CD-ROM for computer users, or other information sources, such as the Australian Bushfoods Magazine or the Land magazine).

### **Database technology: new versus old**

Advances in (computer-based) information technology has transformed the storage and transmission of information. This transformation continues. The people interviewed thought that within the next decade, the Australian bushfood industry would almost certainly have its own web site, and almost all its information exchange would be digitally based. Nevertheless, despite the growing use of computers by Australians, significant numbers of bushfood suppliers remain reliant on traditional means of information exchange and storage. As a group, the traditional landowners are the least skilled in the computer technologies, although there are significant exceptions.

Low levels of computer skills among some grower associations require that the database information be available in printed form. A combination of email, fax, telnet, possibly voice mail, and post can be appended to a computer database engine that drives an internet site. Information stored on CD-ROM can be distributed cheaply. Users requiring database information in print form said they preferred loose-leafed fact sheets so that their information can be cheaply and easily kept up to date.

### **Financing the database**

We assume that the on-going running cost of a database would be ultimately financed by industry after an establishment period. Our consultation suggests that the main source of industry funding would be the growers, producers and harvesters (existing and potential). These are the most dependent on database information and would benefit most from it.

Amongst the grower, producer and harvester groups, there was a consensus towards a subscription-type of levy. Whether this would be enforced is a matter that would have to be further considered by the grower associations and harvester cooperatives.

If one of the objectives of a site were to promote bushfoods, then at least the home page would be publicly accessible. If subscriptions were outstanding, a grower's right to advertise on and otherwise use the site could be restricted. Those parts of the site that contain information for growers, for example, prices, could be restricted to paid-up

members by use of password. The alternative of user payment before downloading information sheets received limited support. The potential for the site to earn advertising revenue appears very limited, as many of the more significant players have, or are developing, their own web site.

Many organisations currently charge between \$50 and \$100 a year for membership. This level of contribution should be sufficient to support on-going database costs.

## **Implementation**

Ultimately the responsibility for database information services would fall to a peak industry body (PIB) representing the interests of all members. Thus, one option is for ANBIC (or a successor) to perform the organisation and management tasks associated with the database.

Our consultation suggests that this young and growing industry has not yet achieved the maturity to speak with one voice. There is still much “jockeying for position”. This suggests a phased establishment of a bushfood industry database is an option worth considering.

A phased transition would see individual associations and cooperatives given assistance towards setting up their own database/website. The resultant websites could be much less ambitious than an industry website, but would nevertheless represent a significant step towards a national website.

Ownership and management of the database by grower, producer and harvester associations could have significant cost advantages. Learning and build-up of computing and networking technologies would be distributed through the industry, rather than being concentrated within a single office. Moreover there may be ways to keep costs of multiple sites low. For example, the different associations and cooperatives could use common elements in the database structure and data processing that the web page builds on. Some commonality in design could also reduce costs. Ultimately these individual websites could link, not only to one another, but also to a national website.

The consultation showed the multifaceted nature of the industry and revealed its many dimensions for growth. The dozen or so bushfoods that appear to have an established market position may expand their market share. Industry growth may also take place through market acceptance of an expanding range of yet unrecognised bushfoods. The economic importance of growers, producers and harvesters may increase, either through new large-scale plantations or through an increase in the number of producers. In arid regions increased production may come from improved wild harvesting. This wide range of growth opportunities makes it more difficult for a young industry to present a united front to government in identifying where market failure is hampering its growth prospects. It probably also means that the industry as a whole is unlikely to support a single central database that covers all regions and bushfoods.

## Conclusions

An industry database would assist industry growth, and, if appropriately designed and implemented, would receive industry support. The database should have a website as its public face, but may also need to incorporate the distribution of fact sheets to update database information maintained in loose-leafed folders.

The study team believes that the industry, at this time, favours the distributed database option over the centralised option, and expects that a government initiative that assists growers, producers and harvesters to set up their own database will receive broad support.