

# DESERT KNOWLEDGE CRC

Value chain analysis of  
bush tomato and  
wattle seed products

Kim P. Bryceson

Report  
**40**

2008



THE UNIVERSITY  
OF QUEENSLAND  
AUSTRALIA



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### Desert Knowledge CRC Report Number 40

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ISBN: 1 74158 089 7 (Online copy)

ISSN: 1832 6684

## Citation

Bryceson KP. 2008. *Value chain analysis of bush tomato and wattle seed products*, DKCRC Research Report 40. Desert Knowledge Cooperative Research Centre, Alice Springs.

The Desert Knowledge Cooperative Research Centre is an unincorporated joint venture with 28 partners whose mission is to develop and disseminate an understanding of sustainable living in remote desert environments, deliver enduring regional economies and livelihoods based on Desert Knowledge, and create the networks to market this knowledge in other desert lands

The work reported in this publication was supported by funding from the Australian Government Cooperative Research Centres Programme through the Desert Knowledge CRC (DKCRC); the views expressed herein do not necessarily represent the views of DKCRC or its Participants.

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# Acknowledgements

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Thanks are due to the many people who agreed to be interviewed for this project. An interviewee list can be found in Appendix 1.

## Abbreviations/Acronyms

|       |  |
|-------|--|
| AFFA  | Commonwealth Department of Agriculture Fisheries and Forestry, Australia |
| ANFIL | Australian Native Food Industry Limited                                  |
| BT    | Bush tomato (Akatjurra or desert raisin) ( <i>Solanum centrale</i> )     |
| DKCRC | Desert Knowledge Cooperative Research Centre                             |
| HACCP | Hazard Analysis and Critical Control Points                              |
| IAF   | Indigenous Australian Foods  |
| NCC   | National Consortium of Colleges  |
| QWFAP | Queensland Wild Foods and Products Inc                                   |
| RIRDC | Rural Industries Research & Development Corporation                      |
| UQ    | University of Queensland   |
| WS    | Wattle seed ( <i>Acacia</i> spp, primarily <i>A. victoriae</i> )         |

## Executive summary

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This report outlines a market analysis of the Australian bush tomato (*Solanum centrale*) and wattle seed (*Acacia* spp) products. The project was commissioned to explicitly characterise and map the Australian bush tomato and wattle seed value chains from production through to domestic distribution and final consumption, and to identify and evaluate high value market segments that might be used to focus the business developments associated with these two products. The following criteria were investigated in some detail: Industry stakeholders and activities, product creation and delivery, financial conditions, information conditions, incentives, motivators and drivers, and governance conditions.

The analysis has shown that demand for bush food products in general has grown in the last two years, and that currently, bush tomato (BT) is in higher demand than wattle seed (WS). However, it was also found that while a viable and growing bush food industry exists that involves both products, there are considerable challenges to developing a sustainable industry around them, both from a production and from a market perspective. These include:

- **Supply issues** need to be addressed, such as raw product availability, quality and consistency of raw product, effective grading of product and appropriate inventory management of all components in the chain to minimise fluctuating demand/supply flows. Associated with supply is the question of sustainability and efficiency of wild-grown product and bush harvesting methods, which, while culturally extremely important, and should be fostered, are unlikely to be plausible as the only source of product in a commercially driven environment. Cultivation of BT in particular is being investigated through cultivation trials and with community involvement in an effort to address this issue.
- **Internal industry competition** for raw material supply in Australia is fierce when supplies due to drought or other considerations are poor. It was found that this is leading to monopolistic behaviours by some players, and these behaviours, plus some long-term infighting between people who have been involved for many years in the industry, creates a perception of a lack of professionalism which will increase the business risk of any of the bigger retail outlets dealing with any of the plethora of small players that are now coming into the industry.
- **Food safety and traceability.** This is a key area of concern. Poor food-hygiene practices were prevalent at the production stages, resulting in variable raw material quality. Additionally, there was very little record keeping or traceability generally other than in the two major chain models identified and described in this report. This situation must be addressed in the current food business environment for product to be sold effectively and within current food safety guidelines.
- **Consumers** do not know what most of the current marketed bush food tastes like, so are not actively demanding the products. Since the value-added products using bush tomato and wattle seed are sold mainly under the categories of jams, chutneys, sauces, bakery ingredients and sprinkles (dukkah) in the shops – with varying percentages of the raw product included – the questions arise as to how consumers differentiate bush products from all the similar products on the shelves, and do they want to? A significant consumer survey across various retail outlets would provide a clear understanding of what consumers would like, thus giving a better idea of demand, as well as enabling better targeted product-differentiation strategies to be put in place by individual businesses in the industry.

- **Business skills development needs.** Business development and knowledge creation, transmission and operational training are lacking. This situation needs to be addressed.

Providing recommendations on how to address the above issues was beyond the scope of this project, but it should be noted that ANFIL (Australian Native Foods Industry Ltd) was set up in 2006 as the new Peak Body Board for the Australian Native Foods Industry. Their broad objectives do cover some of the above issues including product definition, Aboriginal liaison, national communication, and developing national quality assurance and food safety guidelines.

# 1. Introduction

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Supply and value chains are vertically integrated, strategic alliances between a series of independent businesses that have come together as a group to more efficiently capitalise on specific market opportunities (Cox 1999). The goal of a supply/value chain is to optimise performance in that industry using the combined expertise and abilities of the members of the chain. Successful chains depend on integration, coordination, communication and cooperation between partners with the traditional measure of success being the return on investment (O’Keefe 1998; Boehlje 1999; Dunne 2001, Bryceson & Kandampully 2004).

The project described in this report was to examine and map the Australian bush tomato and wattle seed value chains from production through to domestic distribution and final consumption, and to identify and evaluate high value market segments that might be used to focus the development of these two industries’ business and competitive strategies.

The project is part of work being undertaken in the Desert Knowledge CRC on Bush Products from Desert Australia which aims ‘to improve opportunities for the arid zone native foods industry’. A critical current issue identified for the industry is the disagreement about whether the industry is demand- or supply- driven. The current project is an independent study to map the bush tomato and wattle seed value chains and carry out an assessment of the current and future markets.

## 1.1 Agri-Industry/Agri-Food Chains

Bush tomato and wattle seed are amongst a wide range of wild/native bush plants which comprise the Australian bush foods industry. They can thus be thought of as part of the agri-industry (agri-food industry) sector. The agri-food industry sector worldwide is large and multifaceted, comprising businesses that create industry-specific agri-food chains that often exist across international boundaries. Businesses in such chains will normally include:

- Input suppliers (e.g. agricultural chemical and fertiliser companies such as Bayer and Cargill)
- Service providers (e.g. banks, R&D organisations, governments, consultants)
- Producers (e.g. growers, bush harvesters)
- Traders (e.g. Mitsubishi, Australian Wheat Board, Bohemia Nut Company, ConAgra, etc)
- Processors (e.g. Peanut Company of Australia, Flour Mills, Parmalat, etc)
- Manufacturers (e.g. food processing companies such as Kraft, Mars, Cadbury Schweppes, Unilever)
- Retailers (e.g. supermarkets such as Tesco, Carrefours, Woolworths and Coles, as well as smaller retail outlets)
- Logistics (e.g. Transport and storage companies).

Generically, industry chains are classified as either ‘supply’ or ‘value’ chains. In this report the following definitions within the general term ‘industry chain’ are used:

- A **supply chain** is taken to mean the physical flow of goods that are required for raw materials to be transformed into finished products.



- **Supply chain management** is about making the chain as efficient as possible through better flow scheduling and resource use, improving quality control throughout the chain, reducing the risk associated with food safety and contamination, and decreasing the agricultural industry's response to changes in consumer demand for food attributes (Dunne 2001).
- A **value chain** is taken to mean a group of companies working together to satisfy market demands. It involves a chain of activities that are associated with adding value to a product through the production and distribution processes of each activity. An organisation's competitive advantage is based on their product's value chain. The goal of the company is to deliver maximum value to the end user for the least possible total cost to the company, thereby maximising profit (Porter 1985).
- **Value chain management** is about creating the added value at each link in the chain and a sustainable competitive advantage for the businesses in the chain. How value is actually created is a major concern for most businesses. Porter (1985) indicates that value can be created by differentiation along every step of the value chain, through activities resulting in products and services that lower buyers' costs or raise buyers' performance. In much of the food production and distribution value chain, the value creation process has focused on commodities with relatively generic characteristics, creating relatively thin profit margins.

There are two major issues for agri-industry chains: first and foremost they are essentially 'food chains', that is, the raw product grown on farms (or in the wild, as is currently the case with most bush foods) is transformed through the chain to a processed food product bought by consumers on the shelves of a retail outlet. With increasingly competitive and quality-conscious global market-places for food products, governments and agri-industry chain members are beginning to recognise that food integrity and traceability is critical in answering consumer demand for safe, clean food with an emphasis on quality (USDA 2002). Further, the whole genetically modified (GM) product debate of the late 1990s and early 2000s has fuelled the necessity to focus on systems to deliver food safety and preserve the identity of products in terms of content, quality, method of production and point of origin (Foster et al. 2001).

Product tracking, or traceability, is the ability to track the inputs used to make a food product backwards to their source through different points in the supply chain. Traceability is established for an attribute when information about that particular attribute is systematically recorded from creation through to marketing. For example, for beef meat complete traceability would include the ability to identify the genetics (via DNA tracing), feed sources, animal husbandry techniques, method of slaughter, etc (Clemmens 2003). Any number of attributes about a product can be recorded in this manner.

Essentially then, traceability systems are about good record keeping and may be used either to segregate one crop or batch of ingredients from another, or as an Identity Preservation (IDP) system that identifies the nature of the crop or ingredient. These IDP systems require strict documentation to guarantee that certain qualities or traits are maintained in the supply chain (Strayer 2002). The requirement for traceability is a driving force in the need to adopt electronic enablement throughout agri-industry chains.

The second and most longstanding issue for agri-industries is that they deal in low margin commodities where competitive market forces have typically resulted in the cost of production being very close to the value created, thus leaving relatively thin profit margins (Boehlje 1999). In addition, unlike chains in other industry sectors the creation of the raw product through agronomic production is directly affected by climate and the resulting weather which can be highly variable

and often results in a variable supply of variable quality raw product (Miranda & Vedenov 2001). Commodity availability as a result of, for example drought, in turn has direct impact on commodity prices worldwide (O’Keefe 1998). Ensuring constant volume, high-quality product at the right time and price is a driving business force in domestic and international agri-industry chains. As a result, supply and value chain analysis of agri-industry chains has become a valuable tool in determining where added competitive advantage (for example, by increasing efficiencies and reducing costs) can be generated for these industries.

**The key issues for successful industries are good information flows and good communication across the chain – and they are *demand* driven, not production driven.**

## 2. Project objectives

- To examine and map the Australian bush tomato (BT) and wattle seed (WS) supply and value chains from production through to domestic distribution and final consumption
- To identify and evaluate high-value market segments that might be used to focus the development of the BT and WS industries’ business and competitive strategies
- To describe business models used in the BT and WS industries to maximise strategic competitive advantage, including an understanding of failure factors.

### 2.1 Required project outcomes

- A detailed qualitative and quantitative overview and understanding of the BT and WS value chains, including current and future potential markets and market segments
- Comparison of the effectiveness of business models used in the BT and WS industries.

### 2.2 Required deliverables

- BT and WS value chain maps with an associated report identifying markets and potential high-value market segments, including analysis of stocks and flows, driving forces, effectiveness, and potential failure factors.

## 3. Methodology

- Desk top research of current literature and other public domain data on the BT and WS industries to develop an overview of the regional and national industry sectors regarding volume, value and trends. This gave a general qualitative and quantitative description of the industry and the supply/value chains involved.
- Explicit characterisation, description and mapping of each of the two industry chains chosen, identifying domestic and export markets, drivers, barriers, the information supply chain, products, current value-add components and potential areas for new business development, as well as any significant changes occurring in the industry (see Table1).
- The primary data collection mechanism was a survey with representative stakeholders in the BT and WS chains via face-to-face and telephone interviews using a semi-structured questionnaire.

Table 1: Value chain issues addressed in analysis

| Aspect                                  | Definition  | Task description  |
|---|---|---|
| 1. Industry stakeholders and activities | The set of processes or activities that create the attributes or products that will be demanded or used by the end user or consumer.                      | <ul style="list-style-type: none"> <li>Identify the main categories of stakeholder/trader groups, stages and activities undertaken in the transformation of a raw input into a delivered product (or service) to the end consumer.</li> <li>The transformation stages may be linear and sequential but also can bypass or be in parallel with other stages. (i.e. value nets)</li> <li>Where different channels exist, their significance can be indicated by volume and value passing through each.</li> </ul>   |
| 2. Product creation and delivery        | The product flow features of the chain.   | <ul style="list-style-type: none"> <li>A summary-level description of the main stakeholders' activities undertaken and material volumes employed at each stage to allow an understanding of operations (and differences in operation) throughout the delivery channels.</li> <li>A critical issue in managing the product flow in a supply or value chain is managing slack or flexibility and supply chain interdependencies to accommodate unexpected interruptions or events.</li> <li>Consumer-based surveys (e.g intercept surveys)</li> </ul>     |
| 3. Financial conditions                 | The financial or cash flow across the participants and processes.   | <ul style="list-style-type: none"> <li>A simple 'value analysis' to take some sample products and illustrate how value and costs are accumulated (and margin gained) throughout the transformation stages.</li> <li>Electronic funds transfer technology has improved the efficiency of financial and funds flows compared with earlier systems of billing and cheque writing.</li> </ul>   |
| 4. Information conditions               | The information flow across the chain.  | <ul style="list-style-type: none"> <li>Determine the information flows across the chain. Important elements are the accuracy of messages (whether messages are signals or noise), the strength of these messages, the cost of messaging, the speed of transmitting and receiving messages, and the openness to sharing rather than retaining critical information among participants. An additional element – and often a source of conflict – is the sharing of financial performance information across the stages and chain participants.</li> </ul> |
| 5. Incentives, motivators and drivers   | The incentive systems that are in place to drive and reward performance and share risk.   | <ul style="list-style-type: none"> <li>Identify the underlying drivers of value and costs between the stages.</li> <li>Incentives systems might include price premiums, profit sharing, minimum pricing arrangements, window contracts, cash flow or financial assistance contracts, loan guarantees, qualified supplier recognition programs, cost-sharing arrangements, long-term commitments, and knowledge or market access.</li> </ul>   |
| 6. Governance conditions                | The chain governance/ coordination system. This significantly influences who has power and control in a value chain and how risks and rewards are shared. | <ul style="list-style-type: none"> <li>Describe the type of governance or coordination systems accommodated within the industry between trading parties.</li> <li>This could include open-access markets, various forms of contracts, strategic alliances, joint ventures, franchising arrangements, networks and cooperatives, and vertical ownership.</li> </ul>  |

Source: Bryceson 2003

## 4. Australian Bush Food Industry

The Australian Bush Foods industry is small, fragmented and in 2006/07, remains frequently under-capitalised, with wild/bush foods generally comprising only a small part of the overall business activity for many of those involved in the industry. Excluding macadamia nut, which has in recent years become commercially significant, the industry is worth an estimated \$14 million annually, including value adding (Robins 2007).

Bush harvesting is the dominant means of production with half a dozen species still wild-collected (Christensen & Beal 1998; Robins & Ryder 2004; CSIRO 2007). However, cultivation is expanding because of the demand for bush foods generally across the food production, processing and retail sectors, as well as in the restaurant trade. There is a growing tension between the production of native food by mainstream agricultural and horticultural methods and the traditional approaches to cultivation.

There have been few, if any, consumer surveys undertaken to determine whether current products are acceptable to mainstream food buyers, but the recent take-up of native food product by major supermarket chains, both locally and overseas, suggests increasing customer demand.

### 4.1 Industry stakeholders and activities

The industry is slowly developing nationally with a number of Aboriginal participants; however, overall the number of active participants remains small. As with other agri-food industries, there are a specific group or chain (network) of businesses involved, which include:

- Wild/Bush harvesters
- Nursery operators
- Commercial producers of raw produce
- Processors/Manufacturers of raw produce
- Distributors
- Retailers
- Food service operators, including restaurants
- Tourism and hospitality organisations.

These businesses operate as single-purpose enterprises, networks, vertically integrated operations and wholesale/merchandising enterprises. Only two or three of these businesses have an annual turnover of more than one million dollars (Ryder & Latham 2005).

As indicated earlier, only the BT and WS chains within the Australian bush foods industry are being reported on here.

### 4.2 The Bush Tomato (*Solanum centrale*)

The Australian bush tomato – also known as *Akatjurra* or desert raisin (*Solanum centrale*) – is a plant native to the more arid (150–300 mm rainfall) central parts of Australia. It has been used as a food source by central Australian Aboriginal groups for thousands of years (Cribb & Cribb 1974).

Like many plants of the *Solanum* genus, the bush tomato is a small, fast-growing shrub with thorns that fruits prolifically the year after fire or good rains. The fruits are 1–3 cm in diameter and yellow to orange in color when fully ripe. They dry on the bush and tend to then look like raisins. As with

many other *Solanum* species, green unripe fruits contain the toxin solanine, and the fruit must be fully ripened before consumption (Hely et al. 2006; CSIRO 2007). The fruits have a high concentration of Vitamin C and have a strong, pungent taste that makes them popular for use in jams, sauces, chutneys and condiments.

There are several edible species of *Solanum* found in the central Australian region. *Solanum centrale* is the most popular and is considered favourable for cultivation to satisfy western demands.

**Cultural history:** Traditionally, the bush tomato has been (and remains) very important to the Aboriginal people of central Australia where it is usually hand (bush)-harvested by women (Walsh & Douglas 2007) when the fruit have dried out on the bush. The fruit are further dried before being used as either a food or ground up as a paste.

**Challenges:** The challenges for industry development based around the bush tomato are sourcing quality product in viable quantities regularly and, more recently, traceability of product.

### 4.3 Wattle Seed (*Acacia* spp)

Wattle seed is the seed from the tall shrub and tree *Acacia* species and has been used as a food source by Aboriginal people for thousands of years. While there are many species of *Acacia* found in Australia, only a limited number are useful and/or are safe for human consumption (Maslin et al. 1998).

The three main species currently used are *Acacia victoriae* (Elegant Wattle), *A. pycnantha* (Golden Wattle), *A. retinodes* (Silver Wattle) and *A. murrayana* (Sandplain Wattle) with *A. victoria* being favoured in the main (Simpson & Chudleigh 2001; Cribb et al. 2005). Seed, which can be stored for long periods once harvested, is roasted and ground and used in speciality breads, fine chocolates, biscuits and cakes. New products such as wattle seed flavoured ice cream are also being trialled.

**Cultural history:** Traditionally, wattle seed has been harvested from naturally occurring trees by hand. This method of harvesting is still predominant in supplying the bush foods market. As bush harvest is very labour intensive and on a commercial scale provides a significant cost, Simpson and Chudleigh (2001) concluded that the development of an efficient and economic harvester for large scale plantation wattle seed production is a necessity in achieving low cost seed production.

**Challenges:** Simpson and Chudleigh (2001), in a detailed report to RIRDC, indicated that the key economic drivers of this industry were harvesting method and cost, possible yield and farm-gate price. However, as with bush tomato, the sourcing of quality product in viable quantities and, more recently, traceability of product are also challenges that need to be addressed.

## 5. Value chain and market analysis

While the fundamental concept of a value chain is not complex, explicit characterisation and mapping of the value chain is important for any subsequent performance measurement or comparison. Analysis of agri-industry supply chains has thus become a valuable tool in determining where added competitive advantage can be generated for the companies and/or industries involved (Beamon 1998, 1999). In reality, most supply chain analysis, including the Lean Chain approach of Lamming (1996) and Womack and Jones (1996) tends to focus on measuring stocks and flows of product, information and financial factors, and on how managing these in the most efficient

way enhances profitability, rather than providing the information necessary for developing good business strategies that lead to innovative value adding (Govindarajan and Trimble 2005), competitive advantage (Porter 1985), sustainability (Svensson 2007) or managerial education (Dunne 2004). In this study the following were specifically investigated in order to better understand these issues for the BT and WS chains, although a number of other issues such as trust development, power disparity in the chain, relationship development and relationship management (Batt 2003) became apparent during the project and were briefly looked at in situ as they pertained to the main themes:

- the set of processes or activities that would create the attributes or products that might be demanded or used by the end user or consumer
- the product flow features of the chain
- the financial or cash flow across the participants and processes
- the information flow across the chain
- the incentive systems that are/should be put in place to drive and reward performance and share risk
- the chain governance/coordination system.

Both BT and WS as products have similar, if not identical supply and value chains. Some points to note are:

- As with any ‘wild’ product, supply may be dependent on the weather, and this has created an erratic availability reflected in pricing
- Currently, BT is in high demand with demand significantly outstripping supply
- Currently, WS is *not* in high demand. There are large stocks of seed in storage despite some strong product promotion by some of the chefs and its use in high profile products such as those used by Qantas for in-flight snacks. No-one interviewed could give a reason for this situation.
- Generally, it was difficult to obtain figures on stocks and flows or financial data that were accurate or could be validated. This was partially due to:
  - the poor series of seasons prior to 2007, which had left all bush harvested products in short supply thus creating a genuine lack of data
  - a lack of good recording of information about bush harvested product
  - a definite reluctance on the part of interviewees to divulge this type of information in detail. This situation cropped up often enough to corroborate independent anecdotal evidence that very poor business information flows (equated to information hoarding) throughout the bush food chains generally is a serious underlying issue for the industry.
- Food hygiene issues were raised a number of times – mainly at the production/harvesting and wholesaler components of the chains.
- Governance questions arose in the form of queries from interviewees as to:
  - best practice management in the industry (what is best practice?)
  - relationship management needs (there is a lack of trust across the chain)
  - information sharing (or lack of)
  - payment of suppliers (some specific problems/names came up a number of times)
  - behaviour of the larger processing companies when sourcing product
  - raw material hoarding leading to a bull-whip effect of demand and supply, making it impossible for suppliers and processors to manage inventory levels

- Formal accreditation needs in relation to implementing food safety and traceability requirements both domestically and for overseas markets.

The generic form of the BT and WS value chain is shown in Figure 1. Stocks and flows for each product and associated financial information is shown in Tables 1 and 2.

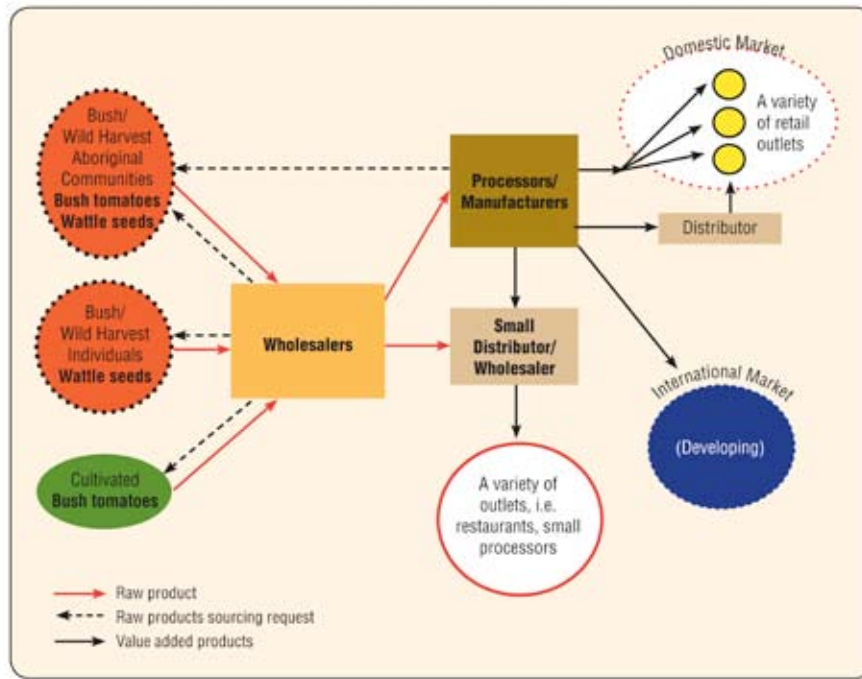


Figure 1: Generic BT and WS Supply Chain

Table 1a: BT generic chain stocks and financial flows

| Bush harvesters   | Wholesalers   | Processors   | Retail products  |
|---|---|--|--|
| <ul style="list-style-type: none"> <li>• 15–20 tonnes/year (total across all harvesters)</li> <li>• Sell at \$4–\$10/kg (cleaned and semi-dried)</li> </ul> | <ul style="list-style-type: none"> <li>• What they can get (e.g. one wholesaler quoted 8–10 tonnes in 2000/01 summer season, 400 kg in 2006/07 summer season, but in fact needed 4 tonnes)</li> <li>• Sell at \$22–\$30/kg + freight (cleaned and dried)</li> </ul> | <ul style="list-style-type: none"> <li>• 4 kgs–5 tonnes/yr dependent on size of business</li> <li>• Value add product – 15–20% margin</li> </ul> | <ul style="list-style-type: none"> <li>• Number of units unknown, but greater than 500 000</li> <li>• 3–10 gm raw material per 250 gm product</li> <li>• \$8.50–\$12.00 on shelf per 250 gm jar</li> </ul> |

Note: Numbers are very fluid for a variety of reasons (see text). Freight costs vary: Bus \$35 for 25 kg depot to depot, Australia Post \$8.80 for 3 kgs.

Table 1b: WS generic chain stocks and financial flows

| Bush harvesters  | Wholesalers   | Processors  | Retail products  |
|--|---|---|--|
| <ul style="list-style-type: none"> <li>0.5–5 tonnes/year (total across all harvesters)</li> <li>Sell at \$0.5–\$4.00–\$14.00/kg (dependent on whom you speak to)</li> </ul> <p><b>Note: In 2007, most seed sold was from storage</b></p> | <ul style="list-style-type: none"> <li>What they can get</li> <li>Sell at \$15–\$25/kg + freight (dried and roasted). <i>Has been as high as \$98/kg and as low as \$8/kg.</i></li> </ul> | <ul style="list-style-type: none"> <li>4 kgs–200 kgs/yr depending on size of business</li> <li>Value add product – 15–20% margin</li> </ul> | <ul style="list-style-type: none"> <li>Number of units unknown</li> <li>\$8.50–\$12.00 on shelf per 250 gm jar</li> </ul> <p><b>Overseas markets (Germany) have a high potential</b></p> |

Note: Numbers are very fluid for a variety of reasons (see text). Freight costs vary: Bus \$35 for 25 kg depot to depot, Australia Post \$8.80 for 3 kgs.

In practical terms, there are two major chain models in the industry that revolve separately around key champions of the Bush Food industry, as well as the generic form of the supply chain for BT and WS. In addition, there are numerous other more ad hoc approaches to getting various value-added products of BT and WS to market. While the two major models dominate, the industry is developing fast and a couple of the smaller players who source BT and WS from Central Australia are beginning to develop their own sourcing of raw material and value-added product market access models.

The two main chain models involved are those of Outback Spirit and Outback Pride. These are described below.

## 5.1 Outback Spirit Model

The Outback Spirit operational and community development model has been well documented in a review by Lisa Robins (2007) and will not be described in detail here; however, for the sake of completeness a brief outline in relation to the supply and value chain issues of this report will be given.

Interviewed were: Juleigh Robins, Ian Robins (Robins Foods); Callum Eddington (Ward McKenzie); Wayne Street (IAF), John Collyer (Chair of IAF); Chris Mara (Coles IFF).

Outback Spirit is the brand name of Robins Food Pty Ltd<sup>1</sup>, a small family-owned food processing company based, as of June 2008, in Altona, Victoria, close to their 50% owning partner Ward McKenzie Pty Ltd.<sup>2</sup> Ward McKEnzie is a substantial family-owned Australian business specialising in processing pulses and grains for both the domestic and export markets, with a strong commitment to Australian produce and ‘putting back’ into the community. Callum Eddington’s comments in relation to the Robins Food equity buyout were that Robins ‘needs a commercial attitude to be marshalled for the greater good’. He is also mindful of supply issues of bush-harvested produce and the need for appropriate grading criteria, but believes Ward McKenzie’s other products can act as a buffer for the company when bush harvested produce is in poor supply. Ward McKenzie has expertise in dry product handling, packaging and labelling, and also has good (export quality) cold chain facilities<sup>3</sup>.

<sup>1</sup> <http://www.robins.net.au/>

<sup>2</sup> <http://www.wardmckenzie.com.au/>

<sup>3</sup> The cold chain refers to the transportation of temperature sensitive products along a supply chain and involves refrigerated packaging methods and the logistical planning to protect the integrity of the product. Cold chain facilities such as refrigeration are particularly required where perishable product is involved.



Robins also have a manufacturing relationship with Jensen’s Choice Foods<sup>4</sup> and Hela Schwarz<sup>5</sup> for new product development.

Robins buys raw product from central Australian Aboriginal communities through an exclusive relationship with Indigenous Australian Foods Ltd (IAF), a not-for-profit procurement company that manages the supply of native foods from regional suppliers. However, there is enough anecdotal information indicating that Robins Foods does occasionally source directly, which has upset the status quo of local wholesalers. Indeed, there is some uncertainty as to who actually supplies Robins now – Janet Chisholm and the community on Napperby (Australian Aboriginal Food Company) have been the major suppliers in the past, with occasional supply coming through Peter Yates, who deals with the Ti Tree community; very rarely, through Rod Horner, who deals with the Utopia community; and, again rarely, through Lyle Dudley, from South Australia.

Robins Foods then manufactures (under Hazard Analysis and Critical Control Points (HACCP<sup>6</sup>) conditions) and markets a range of Australian native food products (which comprise approximately 50% of their full product range) to a wide variety of domestic food service providers, Coles (in association with the Coles Indigenous Food Fund) and to selected Woolworths, as well as to overseas retail outlets in America and in the UK in particular.

The Outback Spirit BT and WS Supply Chain is depicted in Figure 2.

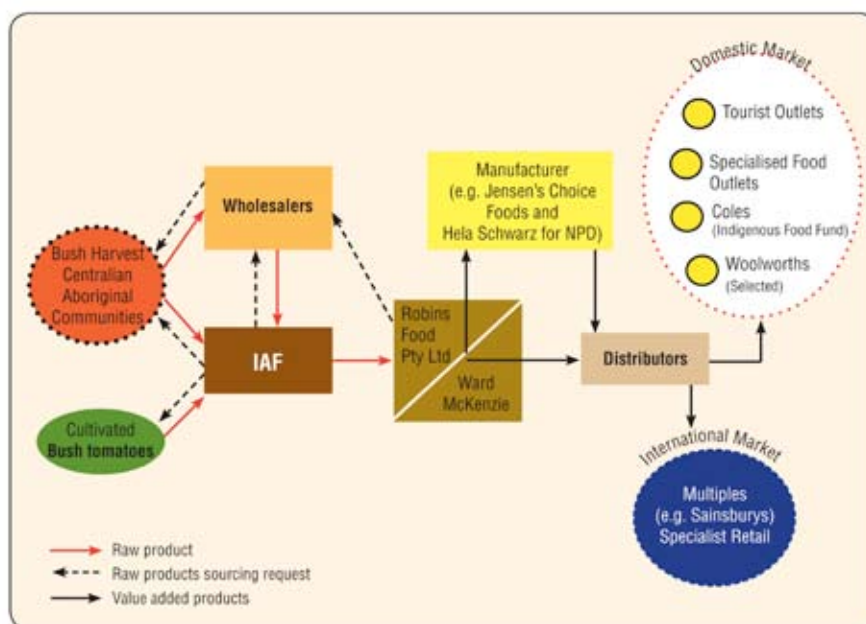


Figure 2: Outback Spirit BT and WS Supply Chain

4 <http://www.jensens.com.au/>

5 <http://www.helaschwarz.com.au/>

6 HACCP is a systematic preventive approach to food safety and pharmaceutical safety that addresses physical, chemical, and biological hazards as a means of prevention rather than finished product inspection.

## 5.2 Outback Pride/The Outback Café Model

The Outback Pride community development model is documented on their website, and as with the Outback Spirit model will only be described as it pertains to the requirements of this report.

Interviewed on site at Reedy Creek Nursery in South Australia were the owners of the nursery, Mike and Gayle Quarmby.

Reedy Creek Nursery in South Australia is a commercial wholesale propagating nursery that provides a range of bush food seedlings to eight to ten South Australian Aboriginal settlements involved in the Outback Pride Project.<sup>7</sup> The Quarmbys have selected a series of seven specific clones of BT from some 300,000 seedlings, over eight years and from eight generations of breeding stock that they can grow up successfully: varieties that have better production, slightly more discriminate fruiting, larger fruit, good flavour, fewer prickles and that are fairly upright. They are supplying these to the communities to grow, and they buy back the product under a five-year grower and supply contract.

The Quarmbys have also set up two 5 ha commercial cropping plots for BT – one in the Flinders Ranges and one elsewhere in South Australia. These commercial areas are run by non-Aboriginal managers, as the management was not deemed by the Quarmbys to be efficient when run from within the associated settlements. Expected tonnage/ha of the plots was not obtained.

The Outback Pride Product range is made on site at Reedy Creek. Impressive new cold storage and processing facilities have been established in 2006/07 and a good record-keeping system has been implemented to record details from raw material product arrival onsite through to product distribution (including batch number and barcoding). Manufacturing is undertaken under HACCP conditions, but official HACCP accreditation was not evident. However, in 2008 they have entered a six-monthly HACCP certification audit program with the National Consortium of Colleges (NCC)<sup>8</sup>.

Outback Pride products are distributed by independent state distributors such as FineRange Foods in Queensland to retailers, tourism outlets and supermarkets as well as a comprehensive range of food service products to restaurants and manufacturers. An Aboriginal family business called Bookabee Australia handles the distribution for SA and NT.

The Outback Café<sup>9</sup>–labelled range (linked to *The Outback Café* TV program with chef Mark Olive) has been in Woolworths since April 2007 at around 60 000 units to start with, followed by a constant 5000 units/day as the usual production run. This is a good business move as Outback Pride will remain a specialist product in niche outlets, and The Outback Café range (which is the same product, relabelled) will be sold through the volume market and advertised through television.

As an example of the increasing maturity in their business operations, the Quarmbys have engaged a business broker to manage their relationship with The Outback Café and with Woolworths. Figure 3 shows the Outback Pride/Outback Café Chain.

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<sup>7</sup> <http://www.outbackpride.com.au/>

<sup>8</sup> NCC Home Learning which is a home study organisation that represents the National Consortium of Colleges in the UK. It offers courses in food safety and HACCP.

<sup>9</sup> <http://www.theoutbackcafe.com/>

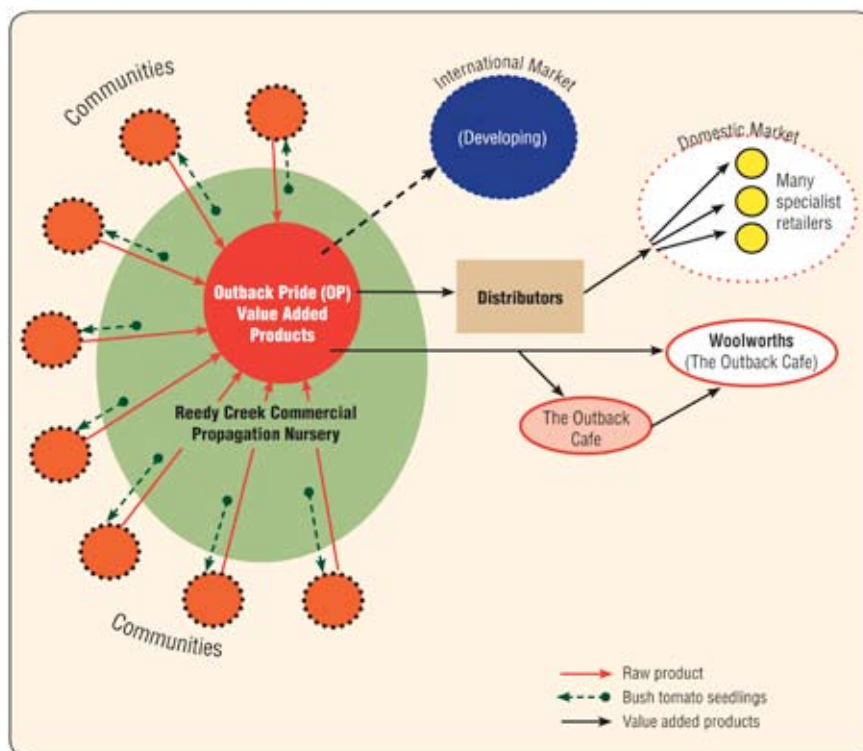


Figure 3: Outback Pride/Outback Café BT and WS Chain

### 5.3 Other chain models

Apart from the two main chains that have been described, there are numerous other paths along which raw BT and WS move into the retail sector as value-added products. Although dealing in low volumes, the majority of people involved in the bush food industry are actually involved at this level.

In the main (as illustrated in Figure 4), raw BT and WS are either value added to by growers or sourced by processors, chefs and/or retailers from around the country (e.g. Dillybag and Murrimagic in Queensland; Cherikoff Foods in Kingsgrove, NSW; Oz Tucker on the Central Coast of NSW; Kurrajong Foods in Sydney), either from small onsellors/distributors (e.g. Tannemara Bush Foods in South Australia) or directly through one of the local central Australian or South Australian wholesalers with connections into local Aboriginal settlements around Alice Springs (e.g. Peter Yates, Ti Tree community; Rod Horner, Utopia community; Frank Baarda, Yuendumu community; and Lyle Dudley from South Australia).

BT raw product is then mainly processed into jams, chutneys or sauces for sale at local markets or through specialist outlets, with WS being mainly used for biscuits, breads and dukkahs and sold in similar fashion.

Two specific examples of local Alice Springs–based businesses involved in bush food use and promotion are:

**Desert Garden Produce:** The business arm of Pwerte Arntarntarenne Aboriginal Corporation in Alice Springs was first established in 2002 by Max and Ruth Emery. They have concentrated on growing BT under horticultural conditions on a local block of land and believe that they now have a plant variety and appropriate horticultural methods to deliver a small but reliable source of fruit which they currently sell direct to processors in NSW and SA.

**Kungas Can Cook:** Rayleen Brown is an Alice Springs business woman who uses local bush food products, including BT and WS, in her catering business.

Nearly all companies contacted have, or are about to have, a web presence with an eCommerce facility to enable their products to be bought via the Internet.

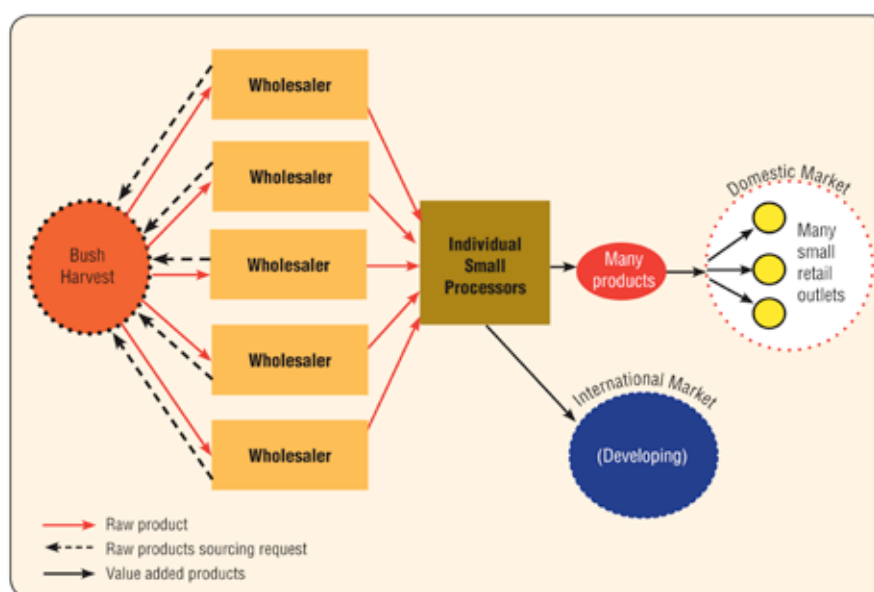


Figure 4: Small player BT and WS Chain

## 6. Discussion

The development of an industry based on a new or fledgling crop is fraught with difficulties – not least of which is the ‘chicken-and-egg’ question of what comes first: the development of a reliable production system for the crop so that there is a product to sell? Or the development of a market for the potential products associated with that crop?

Today, in this market-oriented world, the tide has turned away from production-driven industry development, to demand-driven industry development. Thus, when a product is flagged as a potential industry winner for whatever reason, it is important that the potential market for that product (and any potential value-added products) be evaluated before development monies get poured into something that may not have, or at best may only have a small, market potential.

There have been a number of studies of new industry development, the most comprehensive being by Woods et al (1994) where 35 industries were analysed with six key factors: production, marketing, processing, government, R&D and socio-environmental being highlighted as having major impact. Key (1998) identified five areas of main concern: marketing (awareness, alternative

products, alternative suppliers, future); production (ability to sustain supply, quality improvements, R&D, standards); finance (value adding, level of sales, profitability); infrastructure (distribution and storage capabilities, buying systems, spin-off industries) and management (knowledge, training, skills); while Lim (2003) provided a supply chain management perspective of new agri-food industry development and concluded that any type of new rural industry development can be successful and can create competitive advantage by simply using basic supply chain management strategies.

Where does any of this leave the BT and WS industries? Both BT and WS have been used for value-added product creation for a number of years using a wild crop. They therefore do not precisely meet a new crop or new industry classification. However, the main issues that have emerged from this study are that both BT and WS suffer from new crop and new industry issues, particularly in relation to supply chain issues (focusing on stocks and flows and the management of these) and value chain issues (what actually adds value and what is preventing further development).

In essence, the BT and WS chains are currently part *push* or production/product driven, and part *pull* or demand driven, which is not a viable long-term strategy.

## 6.1 Supply/demand chain issues

The general consensus of people interviewed is that demand is increasing for bush foods around Australia and overseas over the last two years, particularly for Desert Lime, Muntries, Ribberries and Black Mt Pepper. However, bush tomato is still the biggest requirement.

Unfortunately, there have been no rigorous and objective consumer investigations undertaken that enable figures to be put together on actual demand for raw or value-added products. Certainly there is no information available at a more detailed level in relation to understanding the consumer in terms of their ‘feelings’ about raw or value-added bush products (e.g. palatability, price thresholds, convenience in terms of obtaining or using the products) or ‘beliefs’ about the products (e.g. food safety and nutritional values), all of which contribute strongly to the consumers’ buying disposition towards the products and should be known in order to properly address the market.

A significant well-recognised problem is that supply of raw products is highly uncertain. Consistency of volume availability and product quality, good inventory management to minimise hoarding of raw material, and an appropriate grading of products is required in order to reduce the problem and make the chain more efficient.

The 2006–07 summer season was very difficult for BT; very little fresh raw product was available due to long-term drought conditions. WS supply was fairly static over the same time, but WS demand can be inconsistent, and there is currently a significant amount in storage.

For BT the industry really needs to look at the current source of raw materials, with the following questions being useful lines of investigation.

1. What can be done to help obtain a consistent product for which a consistent pricing strategy could be developed?
  - Is commercial-scale bush harvesting a possibility? If so, is this something the Aboriginal communities wish to do?

2. Would it be possible or allowable to GPS-locate bush plants producing quality fruit which would then allow a network analysis of issues associated with harvesting and distribution (e.g. the costs to communities and ease of harvest (distances involved, presence or absence of prickles, transport back to community, etc) to be undertaken to provide some inputs to a pricing strategy?
3. What is done by the bush harvesters to value add prior to supplying to wholesalers (e.g. washing, drying) and how do they get paid for this? Is there a need to formalise this in a pricing strategy?
4. What is the long-term viability of bush harvest versus (or additionally), cultivation? Consistency of volume and quality as well as palatability of product need to be ensured for a successful industry. This requires knowledge of, for example, which clone, what attributes, germination issues, agronomy, and mechanisation of harvest of the plants in order to create the necessary volume and consistency of supply. Without these issues being addressed, the BT industry cannot remain viable in the long term.
5. Chain structures: Is it a viable option for the industry in general to continue with two main and competitive chain models as the industry expands?
  - Are individual Aboriginal communities actually losing out on supply dollars by remaining individual suppliers to individual wholesalers?

For WS the situation is not so serious; WS is plentiful when there is no drought, although pastoralists consider the plant a weed, so some traditional places in SA have been cleared of it and it is thus getting marginally more difficult to find.

Other supply chain issues across both BT and WS chains:

1. There is a wide variation in margins being obtained, progressing upwards from production (12%–100+ %).
2. There is a wide variation in percentage content of BT and WS in value-added products (3%–20%).
3. Distribution: there are many distributors, but the type of demand and the style of ordering (e.g. ‘I need 10 kilos, now!’) generally involves quite significant costs and hassles to smaller wholesalers. Linked to this type of demand are supply quality issues and issues of safety in raw material handling issues, including cold chain handling requirements.

## 6.2 Value chain issues

The work outlined in this report indicates that the major value chain issues in the BT and WS product chains are around information flow up and down the chains (which involves trust development, communication issues and power disparities within the chain), governance issues, the development of business and entrepreneurial skills within the chain and the age old issue of managing human relationships.

As indicated in earlier sections, obtaining valid stock and flow information for BT and WS product is virtually impossible and there is great distrust within parts of the industry of individual players, particularly those who have been in the industry a long time or who might be or are regarded as ‘champions’ by non-industry onlookers.

Poor information flows in agri-food chains are nothing new and they have been targeted in a number of analyses of Australian commodities (Bryceson & Pritchard 2003, Bryceson 2003, Bryceson & Cover 2004a) as a major barrier to technology uptake and innovative market development. However, *information* as a commodity has not necessarily been isolated as a major

contributor to *failure* of an industry, although Gifford et al (1997) do mention reliable market intelligence and performance feedback as being important to *success*. Bryceson and Cover (2004b), in a paper documenting the Guar<sup>10</sup> industry in Australia, suggested that a lack of appropriate, good quality, transparent information trickling down the chain about potential markets, products and prices resulted in variable strategies by various people in that industry's 'chain' that led to disastrous outcomes for that industry. Additionally, while agreeing with Hyde (1998) that industry/product champions are essential in developing new industries because of their ability to transfer their information, knowledge and entrepreneurial skills to the developing industry, they suggested that there was in fact a 'use-by' date for champions after which they actually foster a *lack* of transparency and an *information hoarding* situation as they start to feel threatened by up-and-coming other players.

In the case of the BT and WS industries, internal industry competition for raw material supply and poor information dissemination (information hoarding) is leading to monopolistic behaviours by the larger companies, however well intentioned they may have been in the initial stages of developing the industry. There is evidence of this from smaller players trying to get supply of raw product, particularly of BT. The players that are now entering the industry are product, consumer and business savvy – or have business mentors – so this type of behaviour will not, in the long term, be successful. The reality is that the market share for bush produce is very small in comparison with other non-Aboriginal foods; infighting within the industry gives rise to a perception of un-professionalism (which may be equated to a lack of safety) which will increase the business risk of the bigger retail outlets dealing with anyone in the industry.

As with other new and developing industries, business and entrepreneurial skills need to be developed throughout the chain from production through to retail. A suggested process could be a 'Walking the Chain' approach, pioneered by the Food Chain Centre (2005) in the UK.

The other main issue for the bush products industry in general is food safety and traceability. For BT poor hygiene at a production level has led to a variable quality and there is very little traceability and record keeping generally. For WS both the species used and the roasting quality makes a huge difference to taste and thus to consumer palatability, indicating that the quality and consistency of processing should be standardised around consumer requirements. The issue of food standards and traceability is a major one for the industry, and not only from the point of view of accepting that to provide a product, such standards and record keeping *must* be adhered to (FSANZ 2008) to sell it legally – both domestically and internationally – but also in terms of understanding both the actual costs of adhering to standards (e.g. microbiological testing costs) and the hidden costs involved (e.g. time involved and skilling up of management and staff) (C Mead [CEO Lynher Dairies, UK,] 2008, pers. comm. March).

These industry governance issues must be addressed if the industry is to remain viable and/or expand its domestic and international markets successfully. The new Peak Body, ANFIL<sup>11</sup>, has indicated that these issues are among the first they will be addressing.

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<sup>10</sup> Guar (*Cyamopsis tetragonoloba*) is a legume often referred to as a cluster bean and was first introduced into Australia in 1910 from India (Jackson & Doughton, 1982).

<sup>11</sup> <http://www.cse.csiro.au/research/nativefoods/development/board.htm>

# Bibliography

- Batt PJ. 2003. 'Building trust between growers and market agents'. *Supply Chain Management: an International Journal*, 8(1) 65–78.
- Beamon B. 1998. 'Supply chain design and analysis: models and methods'. *International Journal of Production Economics*, 55(3) 282–294.
- Beamon B. 1999. 'Measuring supply chain performance'. *International Journal of Operations & Production Management*, 19(3) 275–292.
- Boehlje M. 1999. 'Structural changes in the agricultural industries: How do we measure, analyze and understand them?' *American Journal of Agricultural Economics*, December 1999 81(5) 10–28.
- Bryceson KP. 2006. *EAgribusiness – The What, Why, How*. CABI Publishing, UK.
- Bryceson KP. 2003. 'eBusiness impacts on the peanut industry in Queensland – a case study'. *Queensland Review*, Smart State Edition, 10(1) 103–122.
- Bryceson KP and Pritchard A. 2003. *The impact of eBusiness technologies on the grains value chain*, Final Report to GRDC. Canberra, ACT.
- Bryceson KP and Cover M. 2004a. *Value chain and market analysis for the Australian guar industry*, Final Report to RIRDC, July 2004. RIRDC Report 04/165.
- Bryceson KP and Cover M. 2004b. 'The innovator's dilemma and solution in new crop development: A case study of Australian guar'. Proceedings of *Second Australian New Crops Conference*, Qld, 20–24 September 2004.
- Bryceson KP and Kandampully J. 2004. 'The Balancing Act: "E" Issues in the Australian Agri-Industry Sector'. Proceedings of the *McMaster World Congress on The Management of Electronic Business*, Hamilton, Ontario, 14–16 Jan 2004.
- Cherikoff, V. 2000. *Marketing of the Australian Native Food Industry*. RIRDC Publication No: 00/61
- Christensen TJ and Beal A. 1998. 'Australian bush tucker: new crops, new industry'. Proceedings of the *5<sup>th</sup> International Botanic Gardens Conservation Congress*. Kirstenbosch, South Africa, 14–18 September 1998, [http://www.bgci.org/congress/congress\\_1998\\_cape/html/christensen.htm](http://www.bgci.org/congress/congress_1998_cape/html/christensen.htm) Accessed February 2008.
- Clemmens R. 2003. 'Market Traceability in Japan'. *Iowa Agricultural Review*, 9(4) 4–5. Centre for Economic Development.
- Collins R, Dunne T, O'Keefe M. 2002. 'The "Locus of Value": a hallmark of chains that learn', *Supply Chain Management: An International Journal*. Research Note. Vol. 7(5), pp. 318–321.
- Cox A. 1999. 'Power, value and supply chain management'. *Supply Chain Management: an International Journal*, 4(4) 167–175.
- Cribb AB and Cribb JW. 1974. *Wild Food in Australia*. Collins, Sydney.
- Cribb JW, Latham Y and Ryder M. 2005. Desert Delicious – Indigenous Australian foods for the global palate'. *Terrain.org: A Journal of the Built & Natural Environments*. [http://www.terrain.org/articles/16/cribb\\_latham\\_ryder.htm](http://www.terrain.org/articles/16/cribb_latham_ryder.htm) Accessed 10 January 2007.
- CSIRO. 2007. *Bush tomatoes*. <http://www.cse.csiro.au/research/nativefoods/crops/bushtomatoes.htm> Accessed January 2008
- Dunne A. 2001. *Supply chain management: Fad, panacea or opportunity?* Occasional Paper Volume 8, (2) 1–40. School of Natural and Rural Systems Management, University of Queensland, Gatton, Queensland, Australia.
- Dunne A. 2004. 'The learning organisation: a new imperative for Australian agribusiness?' *Agribusiness Perspectives*, Paper 62. Melbourne University, Australia.



- European Food Safety Authority Regulation (EC) No 178/2002, *Official Journal*, L31, 01.02.2002. <http://europa.eu.int/scadplus/leg/en/lvb/f80501.htm>.
- Food Chain Centre. 2005. *Smoothing the flow of cereals through the chain*. Available at: <http://www.foodchaincentre.com/cir.asp?type=1&subtype=&cir=202>. Accessed February 2008.
- Foster M, Barry P and Hogan J. 2001. 'Market access issues for GM products', *Food Australia*, 55(10) 456–457.
- FSANZ. 2008. *Food standards code and user guides*. Available at: <http://www.foodstandards.gov.au/the-code/>. Accessed February 2008.
- Gifford D, Hall E and Ryan W. (eds). 1997. *Competitive Performance: Australian Food Producers and Processors achieving success through innovative business strategies*. Microscope Publishing Pty Ltd, Hawthorn, Victoria.
- Govindarajan V and Trimble C. 2005. *Ten rules for strategic innovators: from idea to execution*. Harvard Business School Press, December 2005.
- Harwood CE. 1994. 'Human food potential of the seeds of some Australian dry-zone *Acacia* species', *J. Arid Environment*. 27: 27–35.
- Hegarty MP, Hegarty EE and Wills RBH. 2001. *Food Safety of Australian Bushfoods*. RIRDC Report 01/28.
- Hely A, Latham Y, Ryder M, O'Hanlon M. 2006. *Bush tomato/Desert Raisin Production*. PIRSA Fact Sheet No: 8/03. [http://www.pir.sa.gov.au/\\_data/assets/pdf\\_file/0005/37877/Bush\\_Tomato\\_-\\_Desert\\_Raisin\\_Production.pdf](http://www.pir.sa.gov.au/_data/assets/pdf_file/0005/37877/Bush_Tomato_-_Desert_Raisin_Production.pdf). Accessed 10 January 2007.
- Hyde K. 1998. *The new rural industries: a handbook for farmers and investors*. RIRDC, Barton, ACT.
- Jackson KJ and Doughton JA. 1982. 'Guar: A Potential Industrial Crop for the Dry Tropics of Australia'. *The Journal of the Australian Institute of Agricultural Science*. Pp 17–32
- Jones JW, Hansen JW, Royce FS and Messina CD. 2001. *Potential Benefits of Climate Forecasting to Agriculture. Agricultural Ecosystems and Environment*, 82(1/3), pp. 169–184.
- Key SJ. 1998. 'New industry development is not an option but an imperative'. In: *Advancing Innovation*, New Rural Industries 1<sup>st</sup> National Conference, Perth, WA. 18–21 October 1998
- Lamming R. 1996. 'Squaring lean supply with supply chain management'. *International Journal of Operations & Production Management*. 16(2) 183–196.
- Lim LA. 2003. 'Unlocking successful new rural industries: is supply chain management the key?' – PhD Thesis. UQ, Gatton, Queensland.
- Marks K. 2007. 'How 'bush tucker' became flavour of the month for foodies'. *The Independent*, 29 September 2007. <http://news.independent.co.uk/world/australasia/article3010184.ece>. Accessed 10 December 2007.
- Maslin BR, Thomson LAJ, McDonald MW and Hamilton-Brown S. 1998. *Edible wattle seeds of southern Australia. A review of species for use in semi-arid regions*. CSIRO, Australia.
- Miers, G. 2003. *Cultivation and sustainable wild harvest of Bushfoods by Aboriginal Communities in Central Australia*. RIRDC Publication W03/124
- Miranda M and Vedenov DV. 2001. Innovations in agriculture and natural disaster insurance. *American Journal of Agricultural Economics*, 83(3) 650–655.
- Nagy, L. (ATech Group and Total Earth Care) 1999. *Improving Access to Bushfood Production & Marketing Information*. RIRDC Publication No: 99/158
- Newton, D. 2000. *Supply Chain Learning for Australian Agribusiness, Agriculture, Fisheries and Forestry Report*, Commonwealth of Australia.
- O'Keefe M. 1998. 'Establishing supply chain partnerships: lessons from Australian agribusiness', *Supply Chain Management: an International Journal*, 3(1) 5–9.

- Organisation for Economic Co-operation and Development (OECD), 1999. *Principles of Corporate Governance*, OECD, May 1999. <http://www.oecd.org/dataoecd/47/50/4347646.pdf>
- Phelps DG. 1997. *Feasibility of a Sustainable Bush Food Industry in Western Queensland*. RIRDC Research paper No 97/11
- Porter ME. 1985. *Competitive advantage: creating and sustaining superior performance*. The Free Press, New York.
- Robins L. 2007. *Outback Spirit bush foods – A learning model in marketing and supply chain management*. RIRDC Publication No: 06/037.
- Robins J and Ryder M. 2004. *Bush tomatoes*. New crops industries handbook, RIRDC Publication 04/125, pp 346–351.
- Roger R and Rogers P. 2005. *Tastes of Australia – A directory of the native food industry*. Tanamera Bush Foods, SA.
- Ryder M and Latham Y. 2005. *Cultivation of native food plants in southeastern Australia*. RIRDC Publication No: 04/178.
- Simpson S and Chudleigh P. 2001. *Wattle seed production in low rainfall areas*. RIRDC Publication No: 01/08.
- Simpson S and Chudleigh (Eds). 2003. ‘Wattle seed workshop proceedings’. *Proceedings of a workshop to assess prospects and develop R&D priorities for a wattle seed industry*, 12 March 2002, Canberra. RIRDC Publication No 03/024.
- Strayer D. 2002. *Identity preserved systems: a reference handbook*. CRC Press, Boca Raton, FL.
- Todd B. 2000. *From plate to paddock: turning the tables, agriculture, fisheries and forestry*, Commonwealth of Australia, AGPS, Canberra.
- Svensson G. 2007. ‘Aspects of sustainable supply chain management (SSCM): conceptual framework and empirical example’. *Supply Chain Management: An International Journal* 12 (4) 262–266.
- USDA. 2002. ‘Traceability for food marketing and food safety: What’s the next step?’ *Economic Research Service/USDA Agricultural Outlook/January–February 2002*.
- Walsh F and Douglas J. 2007. *Bush harvest* Accessed January 2008  
<http://www.desertknowledgecrc.com.au/publications/downloads/50-2202-Wild-harvest-HR.pdf>
- Womack JP and Jones DT. 1996. *Lean thinking: banish waste and create wealth in your corporation*. Simon and Schuster, New York.
- Wood I, Chudleigh P and Bond K. 1994. *Developing new agricultural industries: lessons from the past*. Vol 1. RIRDC, Barton, ACT.
- Zhao J and Agboola S. 2007. *Functional properties of Australian bushfoods*. RIRDC Publication No 07/030.

## Appendix 1: Interviewees

*Note: those interviewed in relation to the Outback Spirit and Outback Pride chains are detailed under those sections earlier in the report.*

- Tanemara Bush foods: Jenny Picket, wholesaler BT and WS, Adelaide.  
BT in high demand – both ‘whole’ fruit and dried – difficult to get in the 2006–07 summer season.
- Lyle Dudley, by phone, collector, wholesaler of BT, but mainly WS, Flinders Ranges.  
Problems over time with unscrupulous people in the chain, and with bills not being paid.
- Ron Horner, wholesaler, Alice Springs.  
Deals primarily with bush harvesters from Utopia.
- Peter Yates and Jock Morse, wholesalers of bushfoods, Alice Springs.  
Deal primarily with Ti Tree Community. Are attempting some horticulture at Ti Tree; there are difficulties with germination and getting community people to harvest what BT is grown.
- FGM Distributors, by phone, Adelaide.  
Don’t deal in much product.
- CDEP Adelaide, by phone.  
Working with Quarmbys in the main.
- Eddie Murri and Phil Baker from MurriMagic, by phone, Yepoon, Qld.  
Value-added products, but also setting up a native plant nursery. Source BT and WS from whomever they can get; currently mostly from Lyle Dudley.
- Rayleen Brown, Kungas Can Cook, Alice Springs.
- Athol Wark, chef Wildfoods, Alice Springs, by phone.  
Uses the location of central Australia as a selling point; consumers really are not aware of tastes and can be conservative
- Andrew Fielke, chef, Adelaide; Chair new ANFIL Board.  
Uses WS quite a bit.
- Beat Keller, chef, Alice Springs.  
Will use occasionally but consumers really are not aware of tastes; so while OK for tourists, not really for residents.
- Mark Olive, chef, The Outback Café TV series, Melbourne; very nice coffee table recipe book sold where products are sold; contractually linked with Quarmbys.  
Uses different products on the shows, which are then reflected in the recipe book and in Woolworths.
- Sammy Ringer, Bush Foods magazine, The Awakening.  
Strong overview knowledge of industry history and players.
- Ray Rogers, Bush Food Directory.  
Retired and sold Tannemara bushfoods to Jenny Picket.
- Wendy Kirkbush, Outback Muster Café, Warrego Highway, Qld.  
Buys Outback Pride products from FreeRange Foods; had a taste test session with three bus loads of travellers recently – the product ‘flew out the door’.
- Des Rogers, PepperedBLACK, Alice Springs.  
Wants to set up an Indigenous hospitality college in conjunction with an Indigenous café.
- Afghan Food Traders, retail, Alice Springs.  
Selling Peter Yates’ value-added products.

- Simons Butchers, Brisbane.  
Has sold Outback Pride products; they go well with meat.
- Vic Cherikoff, Sydney, NSW, chef Cherikoff's Foods, value-add products, by phone.  
Sources raw material from whomever he can get it and will on-sell raw materials when he can.  
(Regarded by other players as a very expensive raw material source.)
- Oz Tukka, Lake Macquarie, NSW, by phone.  
Smaller player, but in many outlets nationally
- Lee Etherington, Kurrajong Foods, Sydney, NSW, by phone.  
High value, value-added products is the only way to go; much going overseas to Europe in particular.
- Dale Chapman, Dillybag, Eumundi, Value-added products.  
Looking to set up a value chain of own. Martha Shepherd (producer of mainly ribberries and high value, value-added products. Qld and Australian Rural Businesswoman of the Year 2006 Communications Officer for ANFIL) is in the region and her distributed value chain encompassing other geographically distributed producers contributing to a specialised and high-value niche set of riberry products is being seen positively and perhaps as an example of what 'small' players can do when collaborating. An instigator with Sammy Ringer of the new Qld Wild Foods and Products Inc (QWFAPI).
- Phillip Vernon, Paddemelon, by phone.  
Could use about 4 tonnes of BT per year, at \$19–28 kg. Export about 60% of sauces to Europe (Germany).
- Doug Brownloe, Communications Officer ANFIL.  
Excellent general information on history of the industry.

#### **Unable to contact, or no reply**

- Contacted Priam, Mahogany Ck, by email but no return contact
- FreeRange Foods in Brisbane
- Sybila Hess-Buchman

## Appendix 2: Bush food value chain project business interview questions

The questions shown below were used as the basis for initiating a discussion during a face-to-face meeting or phone interview with business people in the bush food industry who have agreed to participate in the project.

1. The business
  - a. Company?
  - b. What is your core business?
  - c. What are your major products?
  - d. Do you currently regularly supply/buy bush foods products?
  - e. If (Y) - Which ones?
  - f. If (Y) - Who from/to?
  - g. If (N) - Reason?
  - h. If (N) - In the future would you be interested in supply/buying bush food products?
  - i. If (Y) - Why?
2. Supply chain - Suppliers/Market
  - 1) How would you describe your supply chain?
  - 2) What is the range of bush food products that you deal with?
  - 3) Is it easy to obtain bush food products?
  - 4) Who are your normal supplier/s of bush food products?
  - 5) What are your best selling bush food products?
  - 6) What is your typical supplier/customer? (please tick the appropriate space)
    - a. Company/Individual \_\_\_\_\_
    - b. If Individual Male \_\_\_\_\_ Female \_\_\_\_\_
  - 7) What do your customers buy the following bush food product for?
    - a. Bush tomato \_\_\_\_\_
    - b. Wattle seed? \_\_\_\_\_
    - c. Other bush foods you sell/supply \_\_\_\_\_
  - 8) What quantities do you purchase/supply of products
    - a. Bush tomato
    - b. Wattle seed
  - 9) What per kilo price do you supply/retail
    - a. Bush tomato
    - b. Wattle seed
3. Participant views on Australian bush foods
  - a. What Australian Bush Foods do you personally like to use?  
\_\_\_\_\_
    - i. Why? \_\_\_\_\_
  - b. How did you find out about bush food products?
  - c. Do your customers know about Australian bush foods:  
In general? \_\_\_\_\_  
Specifically: Bush tomato, Wattle seed? \_\_\_\_\_  
In your opinion what has been the speed of product uptake (slow, fair, fast)  
What are the competing products?
  - d. Have there been improvements in the quality of bush food products you receive/sell recently?

END OF QUESTIONNAIRE

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