SOUTH AUSTRALIA

SOUTH AUSTRALIAN FRUIT CROPS INDUSTRY DEVELOPMENT PLAN

1995 – 2000

PRIMARY INDUSTRIES
SOUTH AUSTRALIA

SARDI
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December 1995

This plan is a working document for consultation and negotiation between PISA/SARDI and other industry stakeholders. That consultation is crucial in assisting PISA/SARDI to progress this strategic plan into operational plans for implementation in 1996/97.

4 APPENDICES

EXECUTIVE SUMMARY

FRUIT INDUSTRY VISION

'Through market and product development to facilitate the increase in value of the fruit industries, other than citrus and grapes, by $6.6m p a gross value, from their current value of $93m, over 10 years.'

The industry will do this by:

- being driven by the market - that is, meeting customer needs;
- being internationally competitive in production, processing and transport;
- having closer links between growers, processors, and buyers;
- becoming much more export focused;
- delivering a clean, quality product;
- producing in a sustainable way, and
- being innovative in responding to the needs of markets.

PURPOSE OF THE PLAN

The major purposes of the PISA/SARDI Industry Planning processes are, in conjunction with Industry, to:

a examine existing industry profiles, structures and processes (such as marketing arrangements, relevant legislation and so on) and determine their strengths, weaknesses, opportunities and threats. This will enable us to determine the critical factors that enhance or impede the international competitiveness of the industry in South Australia and consider industry strategies to address those factors, and

b determine and evaluate the major opportunities for sustainable economic development in our industries, and the role of PISA/SARDI in assisting industry to capture those opportunities. By aligning our resources in PISA/SARDI to reflect the identified opportunities, we will maximise our impact as an economic development agency.

This Plan concentrates particularly on industry development issues over the period 1995-2000.

INDUSTRY BACKGROUND AND ISSUES

a Overview

Historically, Australian horticultural production has been primarily oriented to supplying the generally profitable Australian domestic market and until relatively recently the industry has been in the unique position of having this market almost entirely to itself, largely protected from competition by the barriers of distance and quarantine. However, one of the results of this situation is that, with few exceptions, the industry has not developed a strong export culture.

The nature of world horticultural trade and consumer behaviour have changed rapidly and significantly over the past decade. Some of these changes include (Horticultural Policy Council, 1994):

- consumers are becoming more discerning about quality, taste and food safety issues;
- dominance of the trade by large multinational distributors and supermarkets through vertical integration and strategic business alliances;
- dominance of the retail trade by large supermarket chains;
- the increasing preference of multinational distributors and supermarkets to deal directly with producers and source produce from large scale producers able to guarantee supply and quality rather than small growers;
- heavy competition by large suppliers and retailers are forcing further business rationalisation and consolidations;
- increasing demand for year round supply of products, requiring sourcing from both hemispheres, and
- a move away from family farms to corporate farms, large grower cooperatives and grower companies.

These and other trends are likely to continue in the future, but Australian horticulture has not kept pace with this period of change and is being largely overtaken by its major competitors, like New Zealand, South Africa, the United States and Chile. In some cases Australia's share in certain export markets has declined and competition from cheaply priced imports, mostly of processed horticultural products, has even placed pressure on some industries in the domestic market.

Generally, Australia is not in a strong position to compete directly with low cost producers or large international distribution companies. For Australia to become internationally competitive fundamental changes have to be made and there are some valuable lessons to be learnt from successful high cost producers such as Holland, the United States and New Zealand. Like these countries, Australia must develop production and marketing strategies that concentrate on high quality, high value horticultural products.

For industries which lend themselves to mechanisation such as almonds and olives, there is the prospect for large scale production to give the required efficiency of operation. In these cases the availability of suitable land and water resources is essential.

b South Australia

- **South Australia's fruit crop industries (excluding citrus and grapes) are worth a total of $93m annual gross value. Major crops are apples, apricots and almonds. Cherries and olives are also considered in this plan.**

	Value of Production (1993-94; $ million)		
	Australia	South Australia	South Australia as % of Australia
Apples	237.6	25.8	10.9
Apricots	27.1	18.4	67.9
Almonds	32.7	13.4	40.9
Cherries	27.0	2.5	9.3
Olives	0.8	0.5	59.0

- **These industries are diverse but for industry development they have the following in common:**

  - **All have a history of concentration on the domestic market.**

    Often that market is saturated and attention to develop the export market is needed. Development of export markets requires consolidation of the domestic market and export strategies are required.

  - **Domestic market growth for these industries is limited.**

    Year-round access to a wide range of tropical and temperate fruits and advances in transport and storage lead to a great deal of product substitution in the domestic market.

    There are opportunities for niche marketing in domestic markets based on new varieties, eg in apples. But this will not grow the overall market and from a State economic development perspective, efforts in this direction are of questionable benefit.

  - **A market driven commitment to exports is required.**

    South Australia requires a production base which is directed towards producing consistently higher volumes of quality fruit with world's best practice technology for targeted world markets.

CRITICAL SUCCESS FACTORS/STRATEGY AREAS

Several critical success factors were identified when looking at the Fruit Crops Industries. The appropriate strategies which target the critical success factors and to which PISA/SARDI may contribute are also discussed below (and closely follow issues identified earlier by the Horticultural Policy Council, 1994).

1 Market Development and Access

Market development requires a total commitment by producers and agribusiness to the supply of products and services to overseas and domestic customers to the required specification, quantity and delivery time demanded by the customers. A commitment to export is sustained by a thorough understanding of customer needs and an equally thorough understanding of the products and services provided by major international competitors.

Industry strategies to foster a greater marketing commitment include:

- provision of better market intelligence, information and analyses is required for the fresh fruit and emerging industries;
- further understanding of trade issues in major markets; exporters and industry representatives need to travel to develop good commercial working relationships based on personal contact with buyers overseas;
- further consideration of joint venture or supply contract opportunities;
- promotion should be considered for domestic and export markets; promotional brochures for the industries are needed for local and international sales and investment attraction;

- packaging and transport are very important aspects for the export market;
- enhance shipping technology and flexibility and improve airfreight infrastructure and availability;
- ensure regular supplies of product, through cooperation amongst growers, formation of clusters and strategic alliances with larger partners, and
- facilitate market access.

2 Product Development and Innovation

Product development and innovation can be considered as two major objectives of research and development. Innovation is a critical factor in developing international competitive advantage.

Australian product development and innovation must remain clearly focused on market requirements.

Product differentiation is an important means of enhancing value added either on farm or by downstream processing.

Industry strategies which address the issues of product development and innovation include the following:

- market research and analyses, and market evaluation of new products, to realise market opportunities;
- industry stakeholders can further improve their market focus through overseas travel and invitations to overseas marketers and researchers to visit Australia and provide their perspective. Continued access to R and D funds in close collaboration with industry associations is needed, and
- Differentiate products to reflect exactly what specific markets require.

3 Quality

The issue of quality in the fruit industry refers to the need to continually maintain quality specifications and standards required by the customers in the market. Australia's reputation as a supplier of "clean, green" produce is central to the success of local produce in world markets. Delivering produce "fresh" to overseas markets is crucial.

This issue needs constant attention if Australian product is to become more internationally competitive. Failure to address this will not only impair Australia's future export efforts, but may also impact on existing exports.

Key industry strategies appropriate in this respect include:

- enhancing the differentiation of South Australian produce from that of other countries. Continue to build on our "clean, green" image;.
- improving communication of the requirements of the market place from the overseas/domestic buyers to growers;

- discouraging any form of pooling of returns as this does not encourage any change in product quality;

- greater promotion to make producers and all other industry sectors more aware of the importance and benefits of quality management and assist them to implement quality management systems, and

- using research, development and extension resources to improve fruit quality, including post harvest handling, storage and transport issues.

4 Cost/Price Competitiveness

Cost/price competitiveness relates to a range of factors including the cost of production, productivity and market prices.

In relation to cost/price competitiveness Australia and its major competitors all have different advantages and problems. The low cost producers have the obvious advantage of cheaper production costs. However, they are sometimes less cost competitive in other areas, incurring greater costs in other components of the marketing chain. Ensuring that agribusinesses operate to worlds best practice is a crucial ingredient in the international competitiveness of our fruit industries.

Key industry strategies which address issues of cost/price competitiveness include:

- review regulations/policies impacting on all industry sectors;

- industry and individual enterprises at all stages of the production and marketing chain undertaking benchmarking studies to determine their deficiencies and introducing world's best practices to address these;

- investigate options for shipping exports, including part charters with other countries on other commodities;

- encourage agribusinesses to avail themselves of State and Commonwealth Government programs to enhance their efficiency and effectiveness as input suppliers, transporters, processors and marketers;

- employing research and development and extension resources to improving cost/price competitiveness through productivity enhancement at all stages of the production and marketing chain;

- encourage industry coordination and cooperation;

- support micro economic reform, and

- review water allocation issues.

5 Sustainability

The fruit industries impact on soil, water and other natural resources in South Australia. The protection of the fruit crop industries from a range of diseases and pests is paramount.

Industry strategies are aimed at ensuring a sustainable production system in accord with the environmental concerns of the general community and include:

- understanding land and water management issues and how they impact on productivity and degradation of the natural resources, and taking appropriate action, and

- appreciating the consequences of the control of pest animals and plants, and diseases, and taking appropriate action.

6 Coordination of Marketing

The achievement of a critical mass through coordination of marketing is a key competitiveness issue in export marketing.

Industry strategies to address this factor are:

- strategic alliances with international competitors, and

- cooperation between current and/or potential marketers.

OPPORTUNITIES FOR PISA/SARDI TO CONTRIBUTE TO INDUSTRY STRATEGIES

By addressing key strategies, this plan has identified a number of potential areas where PISA/SARDI could contribute to industry development by implementing appropriate programs. They include:

Apples
- help provide market intelligence and analysis;
- help with market development and access issues;
- facilitate industry networking;
- facilitate QA programs;
- improve varieties through research and development.

Apricots
- help provide market intelligence and analysis;
- help improve grower/seller communication and coordination of exports;
- research into variety development;
- product development.

Almonds
- help provide market intelligence and analysis;
- facilitate industry organisation;
- research management practices on farm to enhance productivity and quality;
- research for rootstock and variety improvement.

Cherries
- help provide market intelligence and analysis;
- help with market access issues;
- facilitate industry networking and organisation;
- research and development for early variety and plant nutrition issues.

Olives
- help provide market intelligence and analysis;
- targeted variety/rootstock improvement.

Actual projects that will be undertaken by PISA/SARDI within these potential program areas will be identified in the next stage of the PISA/SARDI planning process. Projects will be evaluated against criteria including market failure and their benefit/cost ratios to assist in the prioritisation of projects for funding.

Summary of critical success factors, industry strategies and potential PISA/SARDI actions

Critical Success Factor	Strategy	Potential PISA/SARDI Programs
Market development and access	• Provision of better market intelligence, information and analysis • Facilitate market access	• Help provide market intelligence and analysis • Help facilitate market access
Cost/price competitiveness	• Encourage industry coordination and cooperation • Employing research, development and extension resources to improve cost/price competitiveness	• Facilitate industry networking • Targeted variety/rootstock/product improvement • Farm management practices
Quality	• Institue/maintain quality assurance	• Facilitate quality assurance • Post harvest storage and handling research and extension

SOUTH AUSTRALIAN INDUSTRY DEVELOPMENT PLAN

1 FRUIT CROPS GENERAL PROFILE

1.1 INDUSTRY POSITION

1.1.1 International Production and Trade

China, USA, Spain and Italy are the main fruit crop producers in the world. As with most other agricultural commodities, Australia accounts for only a small amount of world production and a similarly small amount of world trade.

In the Southern Hemisphere Argentina, Chile, South Africa and New Zealand are major competitors for Australia in world export markets. Major importers are Europe, USA and Canada, China and Hong Kong.

There has been a shift in Australian export markets since the 1970's with exports to the UK and Europe declining while the expanding South East Asian markets have been gaining in importance.

Individual Asian markets for Australian fruit are:

Taiwan
(Source: Export Market Profile, Taiwan AHC 1995)

- Expansion of imports is imminent as Taiwan proceeds with World Trade Organisation membership (WTO). Currently, there are high tariff and non-tariff barriers with the US exempt from import restrictions.

- Quarantine treatment requirements are in place for permitted exports of fruit and vegetables from Australia. Tomatoes, eggplant and potato are not permitted entry.

Singapore
(Source: Austrade Trade Report 1995)

Singapore is a small, prosperous, highly-urbanised island-state with a population of about 3 million people. Singaporeans are becoming more affluent and have more disposable income. The per capita income now exceeds Australia's, and the strong Singapore dollar has made imports cheaper.

Fresh fruit and vegetables enter Singapore duty free. The local government authorities require a phytosanitary certificate.

A GST (Goods and Services Tax) of 3% applies to all imports.

Singapore imports virtually all its fruit and vegetable requirements. Australia's proximity means that it is seen as a natural supplier, but its performance will depend on the quality of the produce shipped and the level of service provided by exporters.

Indonesia
(Source: Austrade Trade Report 1995)

The main prerequisite for importing fresh produce is the procurement of a phytosanitary certificate issued by the appropriate authority in the country of origin. The consignments are subject to plant quarantine inspection upon arrival at the entry points in Indonesia.

On average, the import duty on fruit and vegetables is either 20% or 30%.

Imports valued at US$5 000 or more must undergo pre-shipment inspection.

The quality hotels, restaurants and supermarkets present a niche market for the imported products. There are a number of importers catering for this sector. This is a growing market sector due to the increasing number of high income households and expatriates that require good quality fresh produce with consistent supply. The increasing usage by the growing number of hotels and restaurants account for much of the growth potential.

Overall, the main advantage for Australian products is that Australia can capitalise on the shorter transit time for its products to reach the market. This means it can quickly take advantage of any opportunities that are available in the market.

Hong Kong
(Source: Austrade Trade Report 1995)

Hong Kong has good access to supplies of fresh fruit and vegetables from all over the world. In 1993, 295 000 tonnes of fresh vegetables (HK$1 276 million) were brought into this market.

In addition to the domestic market, Hong Kong is also a sizeable re-exporter of fresh produce. In 1993, re-exports of vegetables amounted to 44 500 tonnes. A significant quantity of Chinese cabbages is re-directed to Singapore, and a range of western fruits and vegetables ends up in Macau.

There is no tariff or any import restriction imposed on imports of fresh fruit and vegetables.

Australia currently accounts for about 5% of the overall imports of fresh fruit and vegetables, and ranks as the fourth largest supplier after China, the US and Thailand. Over the past 10 years, Australia's share of the import market has more than doubled.

In 1993, Australia exported around A$100 million worth of produce to Hong Kong. Oranges, melons (rock and honeydew), pears, grapes and stone fruits (mainly cherries and plums), broccoli, Chinese cabbages, tomatoes, carrots, cauliflowers and asparagus were the main lines supplied.

1.1.2 Australia

The Australian fruit crops industry (excluding citrus and grapes) is valued at A$995.6 million) (ABS, 1993-94). However, the overall figures mask considerable commodity differences between states. Queensland is the major producer of tropical fruits, which accounts for 25% of national fruit crop production by value (not including citrus or grapes). Victoria on the other hand is the leading producer of pomefruit (apples $91m, pears $74m) which amounts to 18% of national fruit crop production by value. Apple was the most

valuable individual crop ($238m) in 1993-94. Value of production by state is indicated in figure 1.

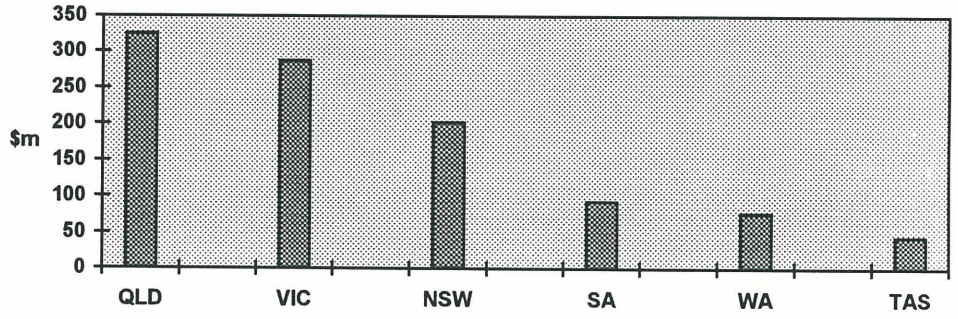
Figure 1: Value of fruit crop production in Australia
Total exports from Australia ($125.3m) represent only approximately 6.5% of production.

1.1.3 South Australia

The major crops covered in this Plan are apples ($A25.8m), apricots (A$18.4m), almonds (A$13.4m), which are the largest fruit crops in the State. In addition, the cherry (A$2.5m) and olive (A$0.75m) industries are dealt with in some detail because it is considered that they have the potential to become major industries, with gross production values above $20m within the next five to ten years.

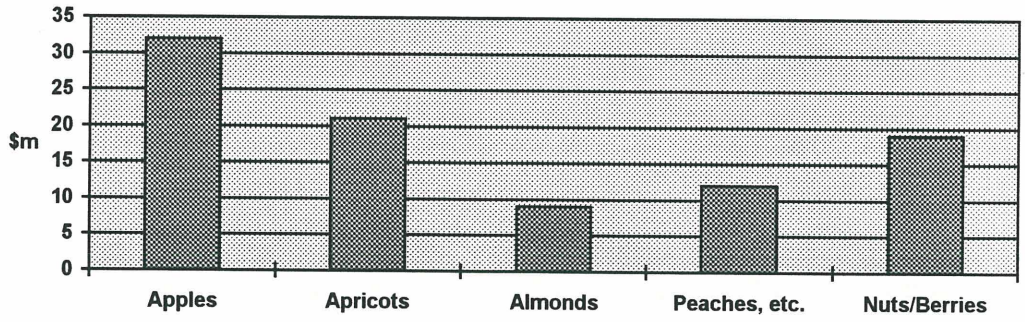
These crops which either currently, or potentially, provide the major economic benefit to the State, are those which PISA and SARDI will concentrate on in terms of program development.

There are a number of other crops such as strawberries ($7.7m), other stonefruit ($13m), pears ($5.5m) and walnuts ($6m), which are significant contributors to the state economy, ie gross value between $5m and $20m, but which are unlikely to become much larger. In addition, there are industries, eg other berry fruits, individually worth less than $5m, but



which collectively are worth approximately $11m.

Figure 2: Value of South Australian fruit crops



In addition to producing the majority of apricots in Australia, SA produces around 40% of the total almond crop (44% by value) and 55% of the olive crop. Altogether the pomefruit, stonefruit, nuts, berries and minor fruits (persimmons, kiwifruit, avocados, etc) in South Australia are valued at A$89m (Figure 2) in 1993-94.

The total value of fruit production in South Australia rose by almost 45% over the period 1988-89 to 1992-93. The value of apple production increased by 51% over this period. Almonds increased by a similar amount (51% to $9m). Fresh apricot production increased in value by 380%, from a relatively low base, to be worth almost $7m; while dried apricot production remained around the $15m mark depending on seasonal conditions. Other stonefruit contributed (nectarine, peaches and plums) to give an overall increase in the value of fresh stonefruit of 250% valued at $14m.

1.1.4 Regional

The main fruit production areas in South Australia are the Northern Adelaide Plains (NAP), Mt Lofty Ranges, Murray Lands and the South East.

Pomefruit production has its major production centre in the Adelaide Hills. However, there are increasing amounts grown in the Riverland as production techniques are adapted and in recent times significant developments have taken place in the South East stimulated by Joysons Orchards.

For stonefruit the production centre is the Riverland due to climate and the availability of reasonably priced land and irrigation water. Apricots, predominantly for drying, are the major crop but there are significant plantings of peaches and plums also. The exception is the cherry industry which is based in the Adelaide Hills and is also expanding into the South East.

The olive industry is split between the NAP and the Riverland roughly on a 30:70 basis. However, a potential expansion of the industry could see more plantings in the Riverland and Mallee regions.

The main nut crop industry, almonds, started in the NAP and Willunga Basin and is still substantially represented there. In these areas there are many small growers. In contrast, the Riverland plantings are much larger corporate operations and are more likely to be the future focus of the industry in South Australia.

1.2 STRATEGIC ANALYSIS

In common with the other States, South Australian fruit crop industries are not export focused, and most production is destined for the domestic market. The apple industry, through the South Australian Horticultural Export Company, is a notable exception. There are some substantial opportunities for import replacement in the olive, almond and apricot industries. There is little value adding on the whole.

1.2.1 Marketing

The majority of crops are not covered by a State statutory authority (the exception being the South Australian Dried Fruits Board, which does not have a marketing function). Much fresh fruit marketing is uncoordinated and unsophisticated, with irregular supplies hitting the markets causing gluts and consequently price crashes. Fruit crops are generally sold through markets in the capital cities of Adelaide, Melbourne and Sydney. However, the major supermarket chains have been concentrating on securing their supplies of fruits by direct negotiation with producers, cool stores or cooperatives on the basis of a structured supply of product to a guaranteed standard of quality and specification.

1.2.2 'Clean Green' Strategies

One of Australia's key trade objectives is to boost food exports to Asia. The industry vision requires Australia demonstrating that we can produce fresh, clean, safe and nutritious food from a clean environment.

A recent Report emphasised the importance of a 'clean green' food strategy (Horticultural Task Force 1994 pp6-7):

The clean food export strategy aims to increase market preference for Australian exports of fresh and processed foods by building confidence in Australian products on the basis of quality and origin from a clean environment.

Initial funding of $3 million has been provided to run a pilot program in Taiwan, with a further $2 million funding for the expansion of the program if the initial promotion proves successful. All Government funding is conditional on matching industry funds. A consortium based on Mojo Australia has been chosen to develop and implement the strategy in Taiwan. The Taiwan promotion commenced in December 1993.

The August 1993 Federal Budget provided an additional $1.3 million in 1994-95 to underpin domestic efforts to ensure that high quality, clean goods are produced and that the strategy is fully integrated with clean food programs being developed in the States and by industry.

1.2.3 Strengths, Weaknesses, Opportunities & Threats (SWOT) Analysis

A review of the strengths, weaknesses, opportunities and threats connected with fruit crop industries is summarised below

Fruit Crops SWOT Analysis	
Strengths	**Weaknesses**
• Wide range of climate and soils • Relatively low need for pest and disease control • Good infrastructure support • Developing export focus	• Oversupplied markets and price boom/bust cycle • Limited varietal material and poor nursery stock • Inconsistent quality • Limited marketing skills and coordination • Small and fragmented scale of production especially in fresh and dried tree fruits
Opportunities	**Threats**
• Quality and productivity improvement • Quality Assurance (QA) adoption • Better industry communication • Nationally coordinated approach to marketing • Export development and market access • Product differentiation	• Pest and disease outbreaks • Adverse weather events • Competition from importers and other southern hemisphere exporters

Individual commodity SWOT analyses are discussed in subsequent sections of this Plan.

1.2.4 Critical Success Factors

Several critical success factors were identified when looking at the Fruit Crops Industries. The appropriate strategies which target the critical success factors and to which PISA/SARDI may contribute are also discussed below (and closely follow issues identified earlier by the Horticultural Policy Council, 1994).

1 Market Development and Access

Market development requires a total commitment by producers and agribusiness to the supply of products and services to overseas and domestic customers to the required specification, quantity and delivery time demanded by the customers. A commitment to export is sustained by a thorough understanding of customer needs and an equally thorough understanding of the products and services provided by major international competitors.

Industry strategies to foster a greater marketing commitment are discussed in the Executive Summary.

2 Product Development and Innovation

Product development and innovation can be considered as two major objectives of research and development. Innovation is a critical factor in developing international competitive advantage.

Australian product development and innovation must remain clearly focused on market requirements.

Product differentiation is an important means of enhancing value added either on farm or by downstream processing.
Industry strategies to address the issues of product development and innovation are discussed earlier.

3 Quality

The issue of quality in the fruit industry refers to the need to continually maintain quality specifications and standards required by the customers in the market. Australia's reputation as a supplier of "clean, green" produce is central to the success of local produce in world markets.

This issue needs constant attention if Australian product is to become more internationally competitive. Failure to address this will not only impair Australia's future export efforts, but may also impact on existing exports.

Key industry strategies appropriate in this respect are discussed earlier.

4 Cost/Price Competitiveness

Cost/price competitiveness relates to a range of factors including the cost of production, productivity and market prices.

In relation to cost/price competitiveness Australia and its major competitors all have different advantages and problems. The low cost producers have the obvious advantage of cheaper production costs. However, they are sometimes less cost competitive in other areas, incurring greater costs in other components of the marketing chain. Ensuring that agribusinesses operate to worlds best practice is a crucial ingredient in the international competitiveness of our fruit industries.

Key industry strategies to address issues of cost/price competitiveness are discussed earlier.

5 Sustainability

The fruit industries impact on soil, water and other natural resources in South Australia. The protection of the fruit crop industries from a range of diseases and pests is paramount.

Industry strategies are aimed at ensuring a sustainable production system in accord with the environmental concerns of the general community and include:

- understanding land and water management issues and how they impact on productivity and degradation of the natural resources, and taking appropriate action, and
- appreciating the consequences of the control of pest animals and plants, and diseases, and taking appropriate action.

6 Coordination of Marketing

The achievement of a critical mass through coordination of marketing is a key competitiveness issue in export marketing.

Some industry strategies which could be used to address this factor are:

- strategic alliances with international competitors, and
- cooperation between current and/or potential marketers.

1.2.5 Opportunities for PISA/SARDI to Contribute to Industry Strategies

By addressing key strategies, this plan has identified a number of potential program areas where PISA/SARDI could contribute to industry development:

Apples
- help provide market intelligence and analysis;
- help with market development and access issues;
- facilitate industry networking;
- facilitate QA programs;
- improve varieties through research and development.

Apricots
- help provide market intelligence and analysis;
- help improve grower/seller communication and coordination of exports;
- research into variety development;
- product development.

Almonds
- help provide market intelligence and analysis;
- facilitate industry organisation;
- research management practices on farm to enhance; productivity and quality;
- research for rootstock and variety improvement.

Cherries
- help provide market intelligence and analysis;
- help with market access issues;
- facilitate industry networking and organisation;
- research and development for early variety and plant; nutrition issues.

Olives
- help provide market intelligence and analysis;
- targeted variety/rootstock improvement.

Actual projects that will be undertaken by PISA/SARDI within these potential program areas will be identified in the next stage of the PISA/SARDI planning process. Projects will be evaluated against criteria including market failure and their benefit/cost ratios to assist in the prioritisation of projects for funding.

2 INDUSTRY PROFILES

The following sections cover detailed evaluation of the five major fruit crop industries covered by this plan.

2.1 APPLES

2.1.1 Industry Vision

Through improved management and increased plantings over the next 5 years there will be an extra 1,500 tonnes of export apples pa and a further 10,000 tonnes pa by 2005. From new plantings and improved quality and varieties, the value of production will grow by $1.2m pa gross value by the year 2000.

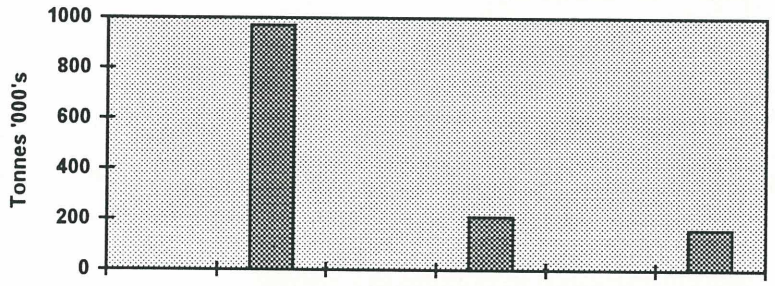
2.1.2 Industry Position

Trade and Global Prospects

In 1991 world apple production was 39.4m tonnes of which almost 10% was traded.

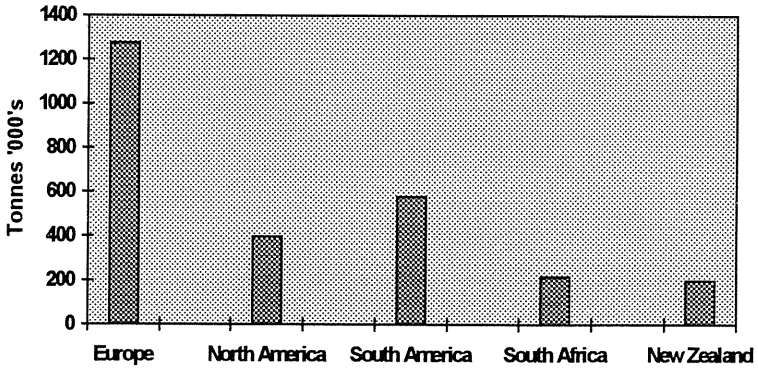
The major importing countries shown below are:

Figure 3: Major apple importers



The major exporters are:

Figure 4: Major apple exporters



There has been a slow rate of growth in apple demand with consumer preference switching to exotic fruits for which relative prices have declined.

Major Competitors

South Africa
South Africa's comparative advantage comes from inexpensive labour, good climate for production (mild Mediterranean), efficient and modern technology and a favourable exchange rate. This results in South Africa producing high quality fruit at a comparatively low cost. The main disadvantages are the high inflation rate and the high cost of transportation to most of its export markets.

New Zealand
The apple industry is a major horticultural industry in New Zealand accounting for a third of the total value of fresh fruit production.

The area planted to apples increased from about 5,000 hectares in 1975 to more than 10,000 hectares by 1995. Production is forecast to reach 520,000 tonnes in 1995, up from 372,000 tonnes in 1992. NZ has a high level of productivity due to favourable geographical and climatic conditions, intensively planted orchards with high yielding varieties and well educated producers. Average yields are more than 40 tonnes per hectare (highest among OECD countries) with a forecast average yield of 50.5 tonnes per hectare by 1995. Some orchards are already achieving yields of 100 tonnes per hectare.

Chile
Yields are increasing, from 19 tonnes per hectare in 1980 to 29 tonnes per hectare in 1990. Chile is now the dominant fruit exporter with exports of temperate fruit increasing from 74,000 tonnes in 1974 to 888,000 tonnes in 1990. The gains made by southern hemisphere exporters (more than double in exports over this period) has been due to new technologies, faster transport as well as substantial investment by multinational companies.

Chile's growth has been due also to its proximity to USA (California and its technology), a broad climatic range allows it to produce a wide range of produce, natural protection against exotic diseases, cheap transport, multinational investors have given Chile access to modern markets and distribution systems, comparatively cheap labour rates and a more stable recent political environment than South Africa and Argentina.

Argentina

Like Chile, Argentina has the advantage of a wide range of different climatic zones and soils which enable a wide variety of fruit to be grown. Other advantages are large areas of land, moderate land prices, sufficient water supplies and large supply of cheap labour.

The main problems in Argentina are poor infrastructure resulting in higher transport costs. It has been identified that European importers want to develop stronger links with Argentina but improvements are needed in the range of varieties, grading, packaging and in quality control.

The Australian Industry

Australia is a minor producer in world production terms (less than 1%). Value of production in 1993/94 was $266.6m of which South Australia produced $25.8m.

Total domestic consumption is rising; fresh fruit consumption is static at 10kg/head; juice consumption is responsible for most growth in demand.

The main varietal changes over the last five years have been the decline in production and tree numbers of Granny Smith and Jonathan apples and an increase in Red Delicious and some new varieties such as Lady William, Red Fuji, Gala and Pink Lady.

In 1991/92, new apple varieties (such as Lady William, Red Fuji, Gala and Pink Lady) comprised only 4 percent of production and less than 15 percent of tree numbers. This compares to New Zealand where new varieties such as Gala, Braeburn and Fuji represent about 50 percent of production.

Industry Organisation

The Australian Apple and Pear Growers' Association (AAPGA) represents the interest of commercial apple growers in Australia. AAPGA includes representatives from the six apple producing states. There are many regional industry associations which represent the interests of growers.

The apple industry is a participant in the Australian Horticultural Corporation (AHC). The AHC was established in 1987, replacing the Australian Apple and Pear Corporation and other bodies. The AHC undertakes a range of functions on behalf of the Australian apple industry. The activities of the AHC are discussed at annual industry conferences, strategy workshops and other forums.

Exporters are represented by the Australian Horticultural Exporters Association (AHEA). AHEA disseminates information to exporters and organises the shipping program.

The main processors are Ardmona, SPC, Golden Choice, Irymple Fruit Products and Letona. A number of smaller companies also produce juice products containing apple juice.

A consortium of packers formed the Australian Apple and Pear Corporation in early 1995 to explore the potential of networking to supply export markets. There are two South Australian companies represented (Plummers and Joysons) as well as companies from Western Australia, Victoria, New South Wales and Tasmania, which collectively represent around 60% of the national apple production.

A similar organisation exists in South Australia (the South Australian Horticultural Export Company) for similar purposes. It is comprised of the four largest grower/packers in the State: Plummers, Flavels, Lenswood Cooperative and Joysons.

Markets

About 60% of Australia's apples are consumed fresh while processors utilize about 40% (apple juice is the major processed product).

In 1992/93 Australia exported 31,224 tonnes of apples (about 10% of production) at a value of $32.9 million fob. The main exporting states by value in 1991/92 were Tasmania (60%), Victoria (13%), Western Australia (11%) and SA (3%) (ABS).

There are no imports of fresh apples into Australia due largely to quarantine regulations prohibiting the import of apples from countries with fireblight. New Zealand and others are examining options to gain access for their apples to the Australian market.

South Australia

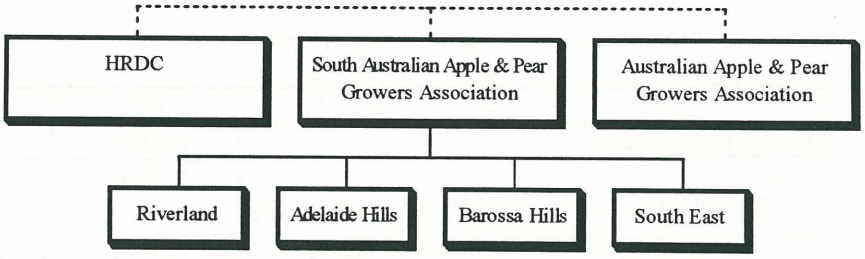
As mentioned, South Australia produced apples worth $25.8m from production of 27,000 tonnes in 1993/94. Tree numbers of 728,000 represent 10% of the national total.

These trees are grown in the following areas:

• Northern Adelaide Plains	9,000
• Hills	608,000
• Murray Lands	33,000
• South East	78,000
	728,000

The apple industry has its major production centre in the Adelaide Hills. However, there are increasing amounts grown in the Riverland as production techniques are adapted and in recent times significant developments have taken place in the South East stimulated by Joysons Orchards.

Industry Organisation



South Australia exports by value were $937,000 in 1992-93 (2.8% of the national total).

There is no State regulation of the apple industry except for that covering all horticultural industry, eg quarantine, labelling, etc.

2.1.3 Economics And Marketing Profile

Summary budgets for apple production in the Adelaide Hills are presented below. Details can be found in Appendix 1.

	Yield	
	Average	**Good**
Tonnes per Hectare	31	40
Price perTonne	$1,200	$1,200
Variable Expenses per Hectare	$9,688 ($323/t)	$11,563 ($289/t)
Gross Margin per Hectare	$13,900	$19,887

Profit is highly sensitive to changes in:

- yield
- price
- harvest, storage and packing costs

There are extensive plantings of apples to the new varieties such as Red Fuji, Pink Lady and Royal Gala. There is a sharp decline in plantings of Granny Smith and Jonathans.

With development costs per hectare of $15,000-$20,000 for 'new system' apples, the investment in new varieties is substantial.

Inspection of a development budget for 'new system' apples indicates that the capital cost may be recouped by the fifth growing season (interest on funds excluded).

Marketing costs including cold storage, freight to port, freight to destination and inspection fees are high. These costs amount to $11/box which necessitates a return in the export market of $A25/box to give a return to the grower of $14/box.

Export of apples from SA still includes those of size not required on domestic markets. Varieties especially for export including Royal Gala, High Early Delicious and Fuji are being planted.

A typical example of costs and returns of export marketing is:

	$A	$A
Export Market Price	$25/box	$1,250/t
Less: All Exporting Costs (local freight, shipping, agents fees, advertising, admin, AQIS inspection)	$11/box	$550/t
Return to Grower	$14/box	$700/t

SA growers can increase returns from some size ranges of fruit which would otherwise be sold for processing at $100-$150/t or heavily discounted. Increasing volumes from new plantings indicate a need for export market development.

SA growers are presently unable to negotiate cheaper freight rates being achieved by US competitors for example. Using 'non-conference' lines and with large volumes, US growers

are able to reduce freight costs by $A1 to $A2 per box. Use of large containers (40ft) can reduce costs for SA growers by $0.80 cents per box.

The Australian apple industry has recently commenced a major benchmarking project which aims to improve its international competitiveness in a range of areas from production through to marketing. This project is being funded through the DPIE Agribusiness Programme and industry funds.

The project will establish benchmarks in a range of areas in Australia and in competitor countries such as Chile, South Africa, New Zealand and Washington State. Meyers Strategy Group has been working with the Australian Apple and Pear Growers Association in the development of the proposal and will be the lead consultants.

2.1.4 Strategic Analysis

Several 'market drivers' are identified in National and Export markets:

- **National**
  - A fully supplied domestic and competitive export markets exist.
  - Overseas competition from NZ, Chile and South Africa is growing.
  - Niche domestic markets for new varieties exist.
  - Substitution for other fruit is occurring.
- **Export**
  - There is large potential demand.
  - QA needed to help meet customer specifications.
  - Improved transport, reduced shipping costs and reliability needed.

Apple Industry SWOT Analysis	
Strengths	**Wweaknesses**
• Industry structure, communication and organisation • Climatic suitability across a range of districts and varietal mix • Quality assurance • Export structure • Extent of replanting to preferred varieties	• Cost of freight to large markets • Small volumes • Variety limitations and poor quality planting material • Limited market access
Opportunities	**Threats**
• Improved selections for colour in Riverland varieties • Comprehensive QA package • Industry coordination for shipping charter • Joint program and network development • Potential of SE Asian market	• Access to water • Cost of packaging • Import competition • To be supply rather than market driven • Quarantine - fireblight • Labour Costs • Power of retailers (supermarkets) Access to

Several key factors emerge from the strategic analysis, including:

- a total commitment is required by growers and agribusinesses to the supply of products and services to customers to the required specification, quantity and delivery time required by the customer;
- the need for coordinated marketing to achieve the consistency of supply and quality;
- cost price/competitiveness is affected by high shipping costs compared with major competitors;
- benchmarking can assist in determining which sectors of industry - producers, transporters, processors, marketers - would produce the greatest payoff for industry from improvements in efficiency (or cost/price effectiveness);
- quality assurance is required in production, transport and processing to meet the stringent quality demands of the marketplace;
- a long term commitment to export markets is essential, and
- ongoing market analysis and intelligence is required for growers to produce the quality/varieties of fruit required by the market. Ongoing variety evaluation linked to the requirements of export markets is needed.

Opportunities for PISA/SARDI to assist industry to address these factors include:

- provide market intelligence and analysis;
- facilitate market development and access;
- support research on varieties/qualities demanded by markets;
- assist maintain the "clean, green" image of SA produce;
- encourage agribusinesses to avail themselves of State and Commonwealth Government programs to enhance their efficiency and effectiveness;
- address issues of sustainability in accord with the general environmental concerns of the community, and
- encourage benchmarking by all industry sectors to determine the relative cost/price competitiveness of those sectors.

Opportunity and Roles analysis is used to gauge the net present value (and the annuity equivalent of that NPV) of the outcome of the potential involvement of PISA/SARDI in assisting industry to capture the opportunities identified for economic development.

In the table below these opportunities are for a further 1,500 tonnes export apples and for export quality apples from a further 300ha of apples (10,000 tonnes).

Opportunity	PISA/SARDI Role %	Probability of Success %	NPV $	Annuity $	Current Value $	Gain %
Expanded Export Sales	10	90	4.8m	0.8m	32m	2.6

2.2 APRICOTS

2.2.1 Industry Vision

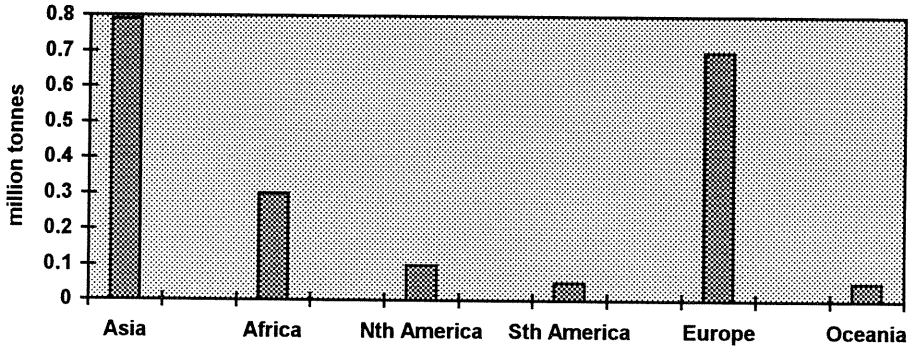
Through improved marketing intelligence and organisation and by meeting market requirements in terms of quality (size), quantity (sufficient volume) and quality assurance to realise a 20% increase in gross value of the industry to $25m in 10 years.

2.2.2 Industry Position

Trade & Global

Over 2.2m tonnes of apricots were produced world wide in 1992/93. The four largest producers were Turkey (0.28m tonnes), Spain (0.2m tonnes), Pakistan (0.11m tonnes) and Ukraine (0.1m tonnes). World production is shown below.

Figure 5: World production of apricots

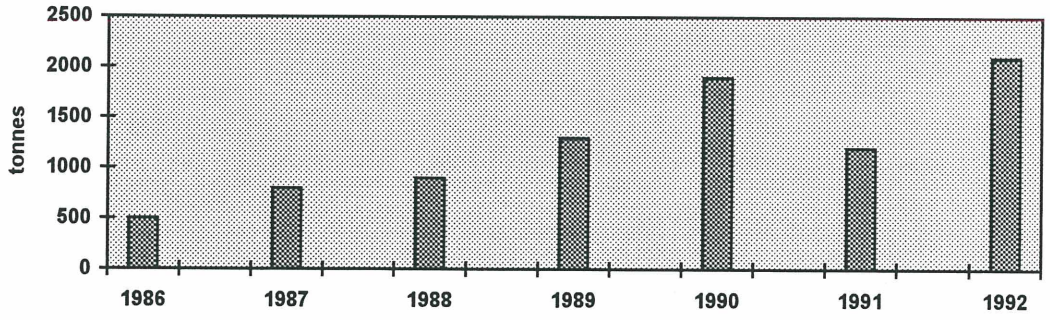


Australia has averaged exports of $600,000 of apricots per annum since 1989. Major markets were Hong Kong ($235,000) and Singapore ($148,000) in 1992/93.

Australia imported dried apricots worth $7.123m in 1992/93 (2,149 tonnes). Imports of fresh apricots were 613 tonnes and preserved apricots 224 tonnes.

Over the last 10 years Turkey has emerged as Australia's major competitor for dried apricots on the domestic market. Turkey's production capacity is about 50,000 tonnes of dried apricots. Dried apricot imports have grown as shown below and most of these are from Turkey. In 1994 Turkish imports were over 5,000 tonnes and are currently running at a 50% higher rate than this. The run of poor seasons in Australia has weakened the market position of the Australian product.

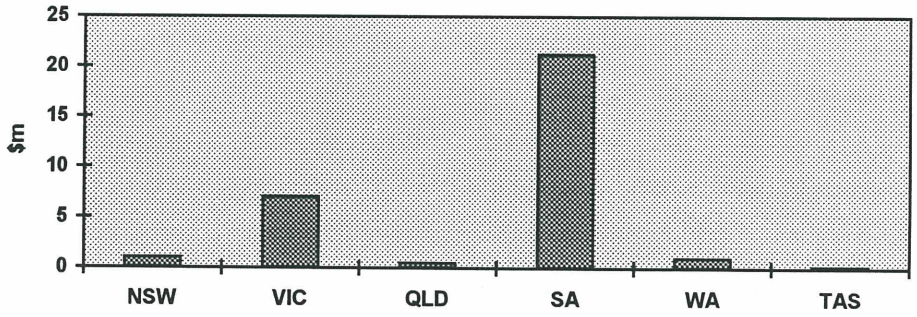
Figure 6: Imports of Turkish apricots



The Australian Industry and SA Production

Apricots are grown in all states. The value of production for 1992/93 is shown.

Figure 7: Australian apricot production by State



Apricots are grown for four major market segments:

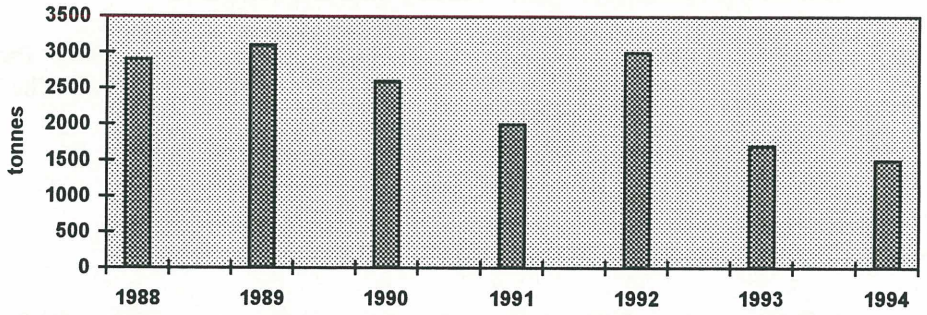
- dried apricots
- fresh market
- canning market
- juice

Apricots have other minor market outlets, including glace, kamaradin and jam.

Apricots have been grown in South Australia for at least 100 years. Growing extended to the Riverland (the major area) early this century. Because of the perishable nature of the fresh product, the dried apricot industry began and is now the major outlet for the fruit.

Australian dried apricot production is shown below. There appears to be an underlying downward trend in production which corresponds with increasing imports.

Figure 8: Australian dried apricot production 1988-94



Fresh fruit production - the other main outlet - has grown slowly and remains a minor industry in part because of the extent of home garden stonefruit production in Adelaide. South Australian Riverland producers mainly send their top grade apricots to interstate markets to secure a price premium.

Apricot growing is heavily concentrated in the Riverland. The area produces about 90% of Australia's dried apricots. Most of the processing equipment for dried apricots is also located in the area.

There is no interest in apricot drying in other states. The Goulburn Valley and MIA produce the bulk of Australia's canned apricots. All other plantings go to fresh market.

Dried apricot production generates casual employment in December and January. A high proportion of the cutting work force consists of women and young people.

Industry Organisation

Apricot growers in South Australia are represented by the Australian Dried Fruits Association (ADFA) and the SA Fresh Fruit Growers Association.

SA Fresh Fruit Growers Association is a voluntary incorporated body which promotes the interests of members through providing a forum for industry development and training.

The ADFA is a national body with both a marketing and agri-political charter.

In the 1994 season SA produced 1,443 tonnes of dried apricots or 98% of Australian production.

In South Australia legislative arrangements for the dried apricot industry include provision for the establishment and operation of the Dried Fruits Board.

The Dried Fruits Board of SA and industry Regulations are established under the Dried Fruits Act 1993. The Board oversees the industry by:

- registering producers and packers, and
- setting standards in production, storage, packing and handling of dried fruit.

The Dried Fruits Board has powers of inspection, information collection, quality improvement, research and promotion. It does not have powers for trading or price setting.

Registration criteria have been relaxed in recent years to include organically produced fruit packers and specialist packers, such as prunes and quandongs.

Prices to growers are not regulated and are set competitively by packers. Packers make this payment to growers using crop finance from banks in advance of sales. The Trade Practices Act prevents setting of retail and packaging margins.

There are currently 8 registered packing houses in South Australia.

2.2.3 Economics And Marketing Profile

Indicative costs and returns from apricots grown for canning, juice and fresh markets are shown in the following table; details can be found in Appendix 1.

	Yield	
	Canning/Juice	**Fresh Market**
Tonnes per Hectare	20	20
Price per Tonne	$650	$1,650
Variable Expenses	$4,905	$15,795
Gross Margin	$7,985	$9,180

The vastly higher costs for fresh market production are due largely to higher freight charges and packing costs. It is noted that the variable cost per tonne of fruit produced is $245 for canning apricots and $790 for fresh market apricots.

Costs to grow and dry apricots are:

	Machine Cutting $	**Hand Cutting $**
Variable Growing Costs at $150/t	1,750	1,750
Drying Costs (materials, labour, cutting, admin) /t	2,200	2,700
Depreciation on Equipment, Machines, Trays, etc.	500	500
Total Cost per Dried Tonne	4,450	4,950

Prices for 'Fancy Large' fruit in 1994 and 1995 were $6,000-$6,700 per tonne allowing a margin of profit of $1,500 per dried tonne. Any penalties for smaller fruit, blemished or dirty fruit erodes this margin.

South Australia produces 95% of Australia's dried apricots. Research has enabled efficiencies to be introduced but total growing and drying costs remain a barrier to competitiveness with Turkish imported dried apricots.

The Government has no role in dried fruit pricing. ADFA Tree Fruits Committee discusses supply and demand outlook each year and promulgates recommended market prices to sellers (agents and packers). Packers calculate grower prices based on market prices and costs of packing and marketing. Ultimately, the prices are set by the market and there is competition between ADFA packers (who take about 30% of tree fruits) and others, such as Angas Park, and the price of imported Turkish fruit.

Pricing in the marketing chain is illustrated below:

	$/t
Grower Price (Fancy Large)	6,000
Selling Price by Agents (Bulk Fruit Only)	9,500 (+58%)
Retail Selling Price	15,000 (+58%)
	($15/kg)

Competition from Turkish fruit is strong with the Turkish product retailing at $9/kg ($9,000/t).

The Turkish product is a partial substitute, though this is a strongly debated issue. The Australian and Turkish products have some similar characteristics but differ in colour, taste, sugar levels and texture.

2.2.4 Strategic Analysis

Dried Apricots

'Market drivers" identified for the dried apricot industry are:

- **South Australia**
  - Turkish competition is dominating.

- **Domestic**
  - Loss of product identity. ailure to differentiate Australian product. Product differentiation is crucial. Cannot compete on price alone at lower end of market.
  - Competition with Turkey at lower end of market.

- **Export**
  - Can 'Australian' product complete price against Turkish product? Must differentiate product and not compete on price. Quality is crucial.
  - Fluctuating supply due to seasonal variation and declining supply.

A SWOT analysis for dried apricots has been derived from industry sources.

Dried Apricot Industry SWOT Analysis	
Strengths	**Weaknesses**
• South Australia comprises 90% • Good growing conditions • Industry funding for Research & Development • Breeding program in place • Strong domestic marketers and packers	• Limited (wrong) varieties to compete with imports • High costs, not cost competitive • Limited export market • Supply fluctuation - seasonal
Opportunities	**Threats**
• Import replacement • Supply niche markets • New variety development • New product development • Export development • Product differentiation	• Imports • Pest and disease losses • Effect of lowered S02 levels - consumer concerns • Oversupply (local and imported production)

Fresh Market Apricots

The following market drivers for the fresh market were identified:

- **South Australia**
  - Product quality, looks attractive but lacks taste. QA is important;
  - Handling is difficult;
  - Maturity levels vary.

- **National**
  - Strong interstate competition;
  - Road freight is efficient;
  - Competition from 'exotics'.

- **Export**
  - Airfreight shortages;
  - Niche marketing and supply to meet seasonal windows of opportunity are important.

Product supply and coordination is being managed by industry. Transport issues are being addressed. There appears no clear sustainable competitive advantage for South Australia and export commitment is lacking.

Several key factors emerge from the SWOT analysis, including:

- a total commitment is required by growers and agribusinesses to the supply of products and services to customers to the required specification, quantity and delivery time required by the customers;

- ongoing market analysis and intelligence is required for growers to produce the quality/varieties of fruit required by the market. Ongoing variety evaluation linked to the requirements of markets is needed;

- a long term commitment to export market development is essential. Development of niche markets is important;

- quality assurance is required in production, transporting, processing and marketing to meet the quality demands of the marketplace, and

- cost/price competitiveness is affected by high labour and transport costs compared with overseas competition.

Opportunities identified for PISA/SARDI to assist industry to address these factors include:

- provide market intelligence and analysis;

- facilitate development of niche markets;

- support research on varieties/qualities demanded by markets;

- assist maintain the "clean/green" image of SA produce;

- encourage agribusinesses to avail themselves of State and Commonwealth Government programs to enhance their efficiency and effectivess;
- address issues of sustainability in accord with the general environmental concerns of the community;
- encourage benchmarking by all industry sectors to determine the relative cost/price competitiveness of the apricot drying sector especially, and
- facilitate quality assurance programs.

2.2.5 Opportunities & Roles Analysis

Improved management and new products has potential to increase yields by 10%; through quality improvement returns to growers will rise (10%), realising a 20% increase in gross value over 10 years (or 10% over 5 years).

Opportunities and Roles analysis is used to gauge the net present value (and the annual equivalent of that NPV) of the outcome of the potential involvement of PISA/SARDI in assisting industry to caputre the opportunities identified for economic development.

In the table below the export opportunities for dried apricots are quantified. These opportunities are for a 10% increase in industry gross value over 5 years.

Opportunity	PISA/ SARDI	Probability of Success %	NPV $	Annuity $	Current Value $	Gain %
Expanded Export Sales	75%	80%	12.6m	2.2m	21m	10%

2.3 ALMONDS

2.3.1 Industry Vision

Increase production by 30% (3000 to 4000t kernel per year) to achieve self sufficiency of almond production, raising the gross value of the industry from $13.4m in 1993-94 to $20m pa.*

Develop marketing strategies to increase domestic consumption and develop overseas markets for unprocessed and value added almond products.

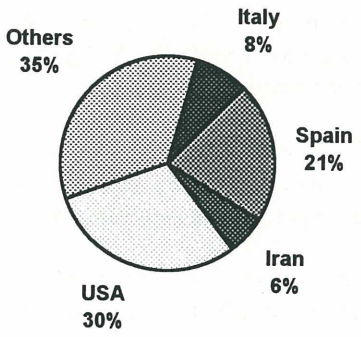
* Based on producing 50% of the import replacement tonnage in South Australia valued at $5000/t.

2.3.2 Industry Position

Trade and Global Prospects

World production and trade is dominated by the USA and particularly the Californian industry, which produced 30% of the world crop and largely determines the prices received in Australia. California leads the world in production and processing technology.

Figure 9: World almond production 1992/93



Australia accounts for far less than 1% of world trade and production and therefore must be a niche marketer on the world scene. In 1992/93 Australian exports were valued at $1.4m which, despite being the highest value in the last five years, is less than 10% of production.

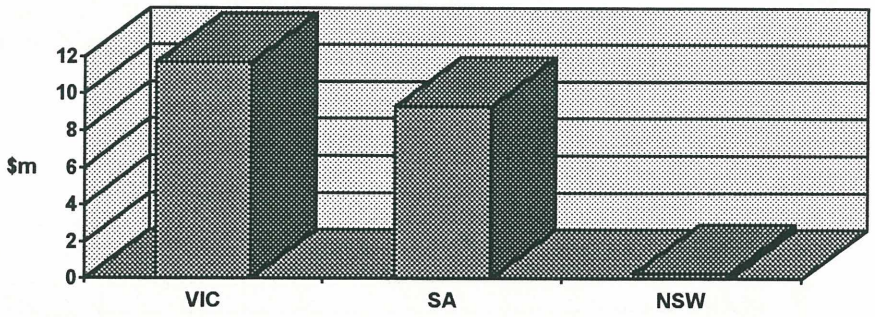
The Australian Industry and SA Production

The Australian almond industry produces around 5000t of kernel valued at $5000/t giving a total value of approximately $25m, according to industry sources. (ABS figures for 1992/93 show 8336t in shell. Using a ratio of 2.6:1 for shell to kernel conversion gives 3200t of kernel which was valued at $21.4m).

Prior to World War II, South Australia was the only significant almond producing state in the country. Subsequently the industry developed in north-western Victoria and expanded as hulling and cracking facilities were developed in the Sunraysia region. In 1993/94 Victoria accounted for 57% of the value of national production ($18.8m); South Australia produced 41% ($13.4m) and NSW accounted for 1% ($0.4m).

In the five years 1988/89-92/93, Australian almond production increased by 40% (5900t to 8236t in shell, ABS). South Australian production increased only 22% in that time (1380t to 1682t). This reflects an increase in plantings in Victoria compared to South Australia. Over the same period total tree numbers increased nationally by 18%, however young trees (non-bearing under 6 years) increased by 13% compared to a 21% increase in bearing trees (six years and older). This indicates that the industry expansion which began ten to fifteen years ago has started to slow.

Figure 10: Value of Australian almond production 1993/94



Almond production in South Australia began in the non-irrigated areas in the Willunga region to the south of Adelaide, and the Northern Adelaide Plains. However, over the past 20 years there has been a decline in these traditional growing areas due to urban encroachment, land prices, the availability of irrigation water and the inherent low productivity of these areas. Expansion of the industry has taken place in the Riverland because of the availability of large units of cheaper, well drained land which is suitable for irrigation and mechanised production methods, and higher productivity of Californian varieties.

Production will increase as young trees come into full production and older, less productive trees will be replaced by new and better material. However the gap between domestic demand, estimated at 6500t of kernel, and domestic production, currently around 5000t, is closing. The industry must therefore examine the likelihood of future increases in production with an eye to improving domestic marketing and hence consumption (currently 300-400g per person), as well as increasing exports.

Industry Organisation

The South Australian Almond Cooperative was formed in 1944 to process and market member's crops. At that time it accounted for 70-80% of national production. Non members sold their crops in shell to nut merchants. Since that time infrastructure has been built up to support the Victorian industry and the main processing and marketing group is Defender Farms based at Robinvale.

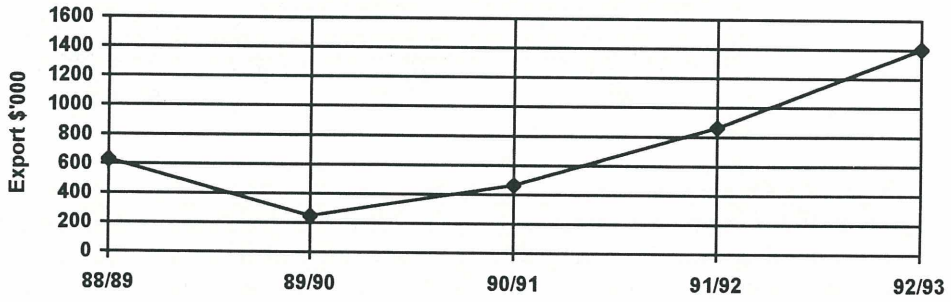
In 1994 the Almond Cooperative became a public company and now trades as Almondco Australia Ltd. A new processing and packing factory was opened at Renmark in June 1995. This plant has created around 30 new jobs in the region. Currently Almondco handles about 3000t of kernel which equates to about 60% of the Australian crop. Defender processes about 1500t of kernel each year, mainly from its own plantings, which amounts to 30% of the crop. The remaining 10% of production, 500t, is handled and marketed by small growers and processors in the Willunga and Northern Adelaide Plains region.

Although the three main production areas cooperate in some aspects of the industry, such as plant improvement and R&D, the sometimes fierce competition in marketing has tended to reduce prices to growers. A more cooperative approach in the face of the overwhelming strength of overseas (USA) producers is required. The formation of the Almond Growers Association in June 1995, representing the majority of production, is just such a move towards developing a united approach to industry matters.

Markets

The majority (90%) of South Australian production is for domestic consumption, and while there is a small export market, Australia is overall a net importer of almonds to the value of around $11m (ABS, 1992/93). These imports are mostly kernel with smaller amounts of unshelled and preserved products.

Figure 11: Australian almond exports 1988-1993



Over the period 1988/89-92/93 exports have increased by 120% (628t to 1405t). These exports went to Asian markets: Hong Kong (66%), Singapore (16%) and Japan (14%). The ABS figures show New South Wales as the major exporter, however this was based on product most likely sourced from South Australia and Victoria since NSW is a minor producer.

In South Australia, Almondco has acknowledged the need to develop export markets and is currently negotiating with buyers in Asia and Europe. However, the difficulty they have faced is the reluctance of buyers to risk a new supplier on a "falling" market, that is, when there are plentiful supplies from the USA. Stable niche markets will need to be developed to buffer Australian exports from seasonal "commodity" price fluctuations. There was a recent announcement of a $5m deal to export to China.

2.3.3 Economics And Marketing Profile

Budget summaries for almond production are shown below. Details can be found in Appendix 1. These are based on irrigated production in the Riverland and southern areas including Northern Adelaide Plains.

Item (per Hectare)		
	Southern	Riverland
Tonnes (in shell)	2.00	2.75
Prices before Hulling & Cracking	$5.00/kg	$5.00/kg
Variable Expenses	$3,186 ($1.59/kg)	$3,186 ($1.16/kg)
Gross Margin	$4,814	$7,814

Costs of production in Australia are thought to be roughly comparable to (if not marginally lower than) the USA, as would be expected given that the industry has taken up the broad scale, mechanised systems developed in California.

South Australia is competitive within Australia by employing economies of scale in growing, handling and processing.

2.3.4 Strategic Analysis

Market "drivers" identified for the almond industry are:

- **Domestic**
  - Net importer but nearing self sufficiency;
  - Competing with strong (USA) importer in raw and manufactured items;
  - Low per capita consumption.

- **Export**
  - Currently very small export base;
  - Cost competitive and high quality;
  - No industry vision or commitment to export development until recently;
  - Demand for Australian product evident in both Asian and other markets.

In general the industry has adopted best management practices in all areas of production. Irrigation, even in the originally dryland production areas, is now standard practice to ensure higher yields. Unfortunately, reduction in aquifer levels in the Willunga basin and competition from other crops, such as grapes, has lead to restrictions in water availability, but this has prompted interest in irrigation scheduling and the use of regulated deficit irrigation.

Control of pests and diseases is well understood and in comparison with the USA there are less post harvest pests which removes the need for fumigation. This has a direct beneficial effect on the quality of Australian product.

Improved management and mechanisation have improved the productivity of the Australian industry to a level comparable to our major competitors. It is unlikely that any major new advances will be made in the near future. However, in the areas of improved planting materials (rootstocks, varieties, quality assurance of nursery stock) and pollination there are still gains to be made.

A SWOT analysis has been developed in conjunction with industry:

Almond Industry SWOT Analysis	
Strengths	**Wweaknesses**
• Internationally competitive on costs due to world's best management practices and technology • Quality of product very high with low chemical use especially post harvest • Consistent annual production	• Yields per hectare on average too low • Poor domestic and overseas promotion (including health benefits) • Low per capita consumption • Undeveloped industry organisation • Undeveloped water trading market
Opportunities	**Threats**
• Replace imports on domestic market • Develop a national R&D Program (rootstock and variety improvement) • Expand export (niche) markets • Improve industry cooperation in marketing and promotion • Develop national policy/strategic plans	• Market dominance of USA sets domestic and export prices • Availability/cost of water and land may limit expansion in traditional and "new" areas • Overseas pests and diseases (import quarantine)

Opportunities which emerge from the strategic analysis are:

a Production

Objective
Increase the volume of almond production to account for 50% of the import replacement tonnage.

Outcome
Production of an additional 1000t-1500t of almonds valued at $5000/t - that is a net increase of between $5m and $7.5m pa. This will be based on increased productivity through adoption of best management practices as well as expansion of plantings by 640ha over the next five years.

b Marketing

Objective
Improve market intelligence and industry organisation.

Outcome
Increased domestic consumption through coordinated promotion and development of an industry strategic plan for future export market expansion (to safeguard the domestic market from oversupply).

2.3.5 Opportunities And Roles Analysis

Opportunities and Roles analysis is used to gauge the net present value (and the annual equivalent of that NPV) of the outcome of the potential involvement of PISA/SARDI in assisting industry to capture the opportunities identified for economic development.

The table below summarises the import replacement opportunity for the almond industry, based on an increase of plantings by 640 ha over the next five years and a projected increase in production of 1,600t over the next 10 years.

Opportunity	PISA/ SARDI Role %	Probability of Success %	NPV $	Annuity $	Current Value $	Gain %
Replace Imports	10	90	3.9	0.67	10	7

2.4 CHERRIES

2.4.1 Industry Vision

Through improved orchard management, lift yields and packout percentages to achieve 50% higher production over 10 years. Price premiums for improved quality cherries and higher production will increase gross value from $2.5m to $3.75m over 10 years.

2.4.2 Industry Position

Trade and Global Prospects

In terms of total tonnage, Australia is a very small player on the world scene. The major producers are the USA, Italy and Germany.

Austrade has identified cherries as having a large potential in export markets. Opportunities lie in Hong Kong, Singapore, Taiwan, Japan, New Zealand and USA. Hong Kong and Singapore are estimated to require 1,000t respectively while Taiwan represents a $10m export market (based on out of season import replacement).

Major Competitors

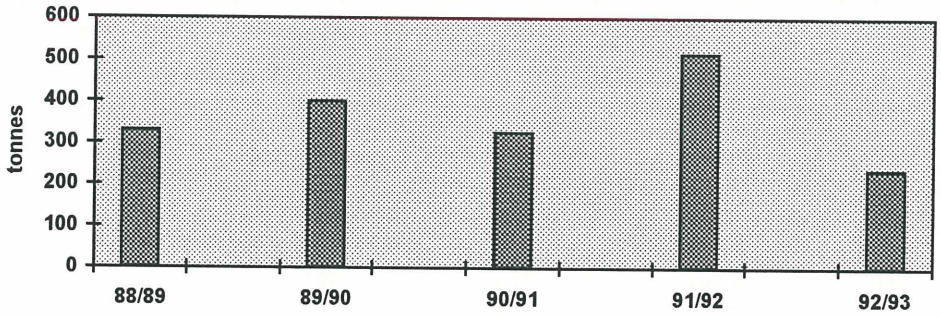
Australia's major competitors for out-of-season northern hemisphere markets are Chile, New Zealand and South Africa.

The Australian Industry and SA Production

The Australian industry is valued at around $27m of which South Australia contributes about $3m (1993-94).

SA production has varied considerably from season to season over several years. This is shown in the table below.

Figure 12: South Australian cherry production



The average SA product over the 5 years to 1992/93 (360 tonnes) represents 8% of the national production of 5,000 tonnes.

Cherries are a high value, high quality crop. The average value over 5 years for SA cherries was $6,000/tonne ($6 per kilogram).

National and SA production is rising rapidly, outstripping projected domestic demand. However there is also room for expansion in the domestic market particularly for high quality produce compared to average quality fruit.

The industry has responded to both domestic and overseas market demand by planting extensively in the past 6 years. In South Australia the number of trees less than 6 years old is approximately double that of trees 6 years and older. (The use of tree age is based on traditional planting where trees under 6 years old were considered to be non-bearing, that is, not yet mature and bearing fruit.) Thus the next 3 years will see a doubling of production of cherries in SA. Similar trends are also occurring in other states.

The majority of new plantings in SA are occurring in the traditional growing districts of the Adelaide Hills covered by the East Torrens and Onkaparinga Council districts. Plantings are also being made in non-traditional Hills districts, in the Riverland, the South East region and recently on the Eyre Peninsula.

The majority of new plantings in South Australia have been based on an advanced management system developed by Primary Industries SA at the Lenswood Centre in the Adelaide Hills. The system incorporates high density plantings, limb bending, bird netting and new varieties. The system produces high early returns through early cropping. At maturity such plantings produce 25 tonne/ha compared to best yields of 10 tonne/ha in traditional plantings. Production costs per tonne of the "Lenswood System" are lower.

Industry Organisation

The entire industry Australia-wide has now joined the Horticulture Research and Development Corporation which administers a 1 cent per kg production levy for the purpose of funding Research and Development. This is a significant milestone in the development of the Australian Cherry Industry.

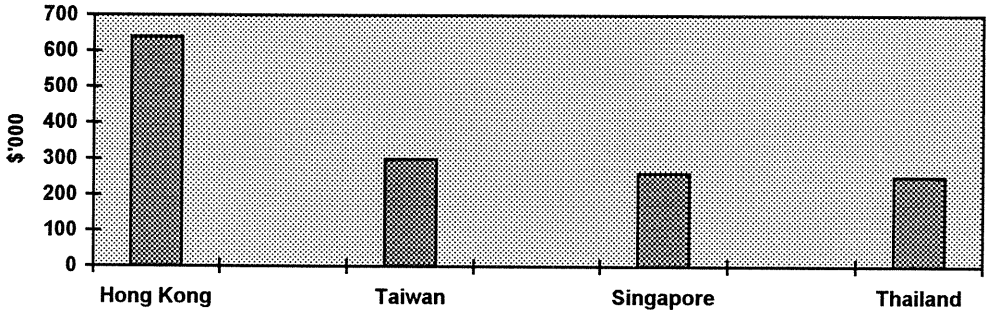
Markets

Almost all of SA production is consumed locally.

Australian exports since 1988-89 have averaged $1.3m per annum.

The major export markets are (by value):

Figure 13: Major cherry export markets



South Australia was a small exporter in 1992/93 (a rain affected year) when exports to the value of $12,000 were recorded. In 1994, 40 tonnes were exported valued at $240,000.

In 1992/93, 6.7 fresh tonnes (worth $43,000) were imported into South Australia. Australian imports (fresh cherries) were 130 tonnes worth $879,000 ($6,700/t).

In 1994/95, 32 tonnes were exported by the SA Horticultural Export Company (Thailand 16 tonnes; Hong Kong, Singapore and Malaysia 3 tonnes each).

Total exports from Adelaide (by air) were 112 tonnes with additional (unspecified) exports from Melbourne, Sydney and Brisbane.

2.4.3 Economics And Marketing Profile

Indicative costs and returns from traditional orchards and from advanced systems are shown below. (Details are in Appendix 1).

	Orchard Type	
	Traditional	**New**
Tonnes per Hectare	10	15
Price per Kg	$5.50	$5.00
Variable Expenses	$25,728	$38,085
Gross Margin	$21,022	$25,665

Seasonal conditions cause great yield variability between season creating a risky production environment.

For example, yields will vary from 5t/ha to 20t/ha (averaging 15t/ha from a 'new system' planting). Gross margins corresponding to these extremes are $5,865 to $35,565 per hectare (average $25,665).

Inspection of a development budget for planting cherries on a 'new system' (excluding land value) shows:

- capital outlay in year 1 - $36,000/ha
- peak debt (in year 4) - $67,000/ha
- capital recouped (break-even) in year 8 at $4/kg - no poor seasons assumed

Exports are airfreighted to Asian destinations in 5kg or 12kg (6 x 2kg) packs.

Returns to growers from export markets averaged $6.65/kg before packaging costs of $0.42/kg (net return $6.27).

Exporting costs are:

	$/kg
• Export Freight	1.040
• Local Freight	0.025
• AQIS	0.055
• Agent Fees	0.070
• Insurance	0.040
• TOTAL	1.230

Export costs were 16% of export market price ($1.23/$7.88).

Prices are averaged and vary for different destinations and AQIS fee varies according to phytosanitary inspection requirements.

2.4.4 Strategic Analysis

The 'market drivers' identified for the cherry industry are:

- **South Australia**
  - Highly perishable product;
  - Niche market opportunities;
  - Competition from NSW producers;
  - Supermarket demand for high volumes and cheap specials.

- **Domestic**
  - Strong Christmas demand;
  - Premiums for quality factors (size, colour).

- **Export**
  - Large potential demand (post Christmas);
  - Premium quality required;
  - Transport restrictions apply from SA, such as insufficient air freight;
  - Supply limitations (especially in poor years).

Several strong themes arise from the market drivers mentioned above.

- Whilst supply is limited presently, this may change with new high yielding plantings coming on stream. SA Horticultural Export Company is coordinating exports with returns to growers of about the same as domestic (1995 experience);

- SA is competitive with interstate producers, especially the 'new systems', and this can be sustained. Access to industry is not easy due to the high cost of development and long 'lead' time;

- PISA/SARDI can continue to contribute strongly in new variety work, rain cover solutions and chemical reduction (IPM). Maintenance of our "clean green" image is important;

- Investment in the industry should increase with the currently attractive returns, and

- Quality assurance work is lacking and is needed in an industry where premiums for quality are paid (and penalties for non-premium apply).

A SWOT analysis for the cherry industry has been derived from industry sources:

Cherry Industry SWOT Analysis	
Strengths	**Weaknesses**
• Right conditions for top quality product (soil, climate) • Late season niche gives advantage over NSW (Young) • Compact' industry gives good communication and unity • Proximity to domestic market (Adelaide) and Airport (export)	• Low volumes c.f. Eastern States • Variable yields (risky) due to birds, rain • Not enough coordinated marketing (competition strong on export markets) • No market for second grade fruit (no processor)
Opportunities	**Threats**
• Research & Development for early variety, crop regulation (hormones) and nutrition • Coordinated marketing and market intelligence to deal with NSW competition • Technical information exchange • Tourism, education and promotion • Liaison with supermarkets • Development of bird repellent • National marketing scheme QA link • Development of export markets - interstate links, trial consignments • New value adding process for second grade fruit	• Supermarket domination on domestic markets • Lack of capital • Interstate and overseas competition

Market and Product Development opportunities emanating from the SWOT:

Objectives

- Facilitate entry or expansion of SA cherries in export markets through intelligence and analysis.
- Improve market information to industries to identify key issues, trends and requirements.
- Market access - Gain access to overseas markets in South East Asia, eg Taiwan.
- National Coordination for export - Facilitate industry networking and organisation to allow cooperative/coordinated approach to export markets.

Outcomes

- Expand SA's cherry exports.
- Enable the cherry industry to evaluate and take up export opportunities on sound factual basis.
- Ability for SA, together with other States, to provide long consistent product lines as required by export markets for cherries.

2.4.5 Opportunity & Roles Analysis

Opportunities and Roles analysis is used to gauge the net present value (and the annual equivalent of that NPV) of the outcome of the potential involvement of PISA/SARDI in assisting industry to capture the opportunities identified for economic development.

In the table below the export opportunities for cherries are quantified. These opportunities are for 50% increased production from existing plantings over 10 years.

Opportunity	PISA/ SARDI Role %	Probability of Success %	NPV $	Annuity $	Current Value $	Gain %
Expanded Export Sales	10	80	0.45m	0.08m	1.4m	5.7

2.5 OLIVES

2.5.1 Industry Vision

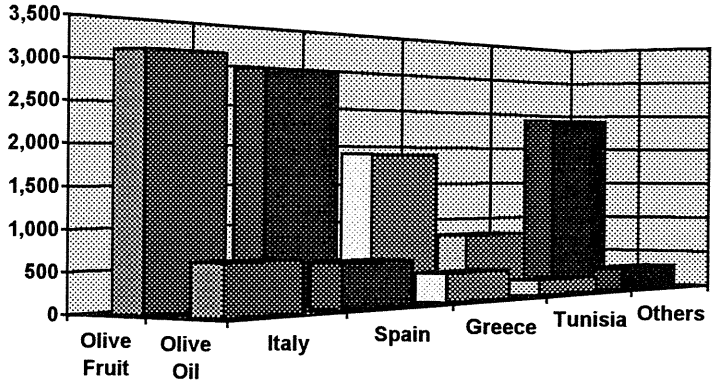
Develop a sustainable industry to produce premium quality olive fruit and olive oil to replace a substantial proportion of imported product. Over the next twenty years the industry will develop an additional annual production of 34,000t of olive oil and 1000t of table olives with farm gate values of $27m and $1.5m respectively.

2.5.2 Industry Position

Trade and Global Position

In the world market Australia is an insignificant producer and trader. The majority of world olive production comes from four countries, Italy, Spain, Greece and Tunisia, which between them account for 78% of fruit and 85% of oil production.

Figure 14: World olive production 1992/93



Ninety seven percent (97%) of the world's olives are produced in Mediterranean countries but among the other producers of table olives the USA accounts for about 10% of world production.

Oil Production

There is considerable variation in year to year world production figures for olive oil due to the strongly biennial bearing nature of the crop. Forecasts for 1994/95 are 1,807,500t, which is a 5.4% increase over the previous season, but the four season rolling average is 1,796,900t. Taken over the twelve seasons 1980/81 - 1991/92 there has been a growth trend in production of 1% pa.

Oil Consumption

Globally, annual consumption growth over the 1980/81 - 1991/92 period averaged out at 0.9%, but more recent data covering the 1990/91 - 1993/94 seasons shows annual consumption growth to be an average 1.8% above production. The difference is covered by a draw down in international trading stocks.

The International Olive Oil Council, of which members account for 93% of world production, classifies countries into three categories for market analysis: Producer-exporters, Producer-importers and Importer only countries.

Countries in the first category account for 87.5% of consumption with a yearly growth rate of 0.6%. The top consumers in this group are European Community members (Italy, Spain and Greece), Morocco, Syria, Tunisia and Turkey.

The second group has a yearly consumption growth rate of 1.6% and consumes 9% of production. The USA is in this group and has a substantially higher consumption growth than the group average at 21% pa in the ten years 1980/81 to 1990/91.

'Importer Only' countries (which includes Australia) account for 3% of total consumption but have an annual growth rate of 13%. The figures indicate that olive oil consumption is spreading outside traditional consumer markets. This may well be on the basis of perceived

health benefits because olive oil is a mono-unsaturated oil and requires little in the way of anti-oxidants or other preservatives for storage.

Oil Trade

Over 16% of olive oil production goes into international trade, equating to around 325,000t pa. The major exporters are the European Community (mainly Italy 67% and Spain 25% with others 8% of the EC total), Tunisia, Turkey and Morocco.

The growth rate of international trade was about 10% pa over the period 1988-1992. The main importers are the EC (30%), the United States (29%) and Libya (6%).

Table Olive Production

About 10% of the olives produced from the world's 750 million olive trees are used for table olives. Average annual production (1988-92) was 908,300 tonnes and forecast production for 1994/95 is 917,000 tonnes. Growth in production since 1980 has been around 2.5% per year.

Variations in world production are not as large as for olive oil but there can be considerable variation across producer countries within a given year. The EC, Turkey, the United States, Morocco and Syria account for 84% of table olive production.

Figure 15: Major producers of table olives

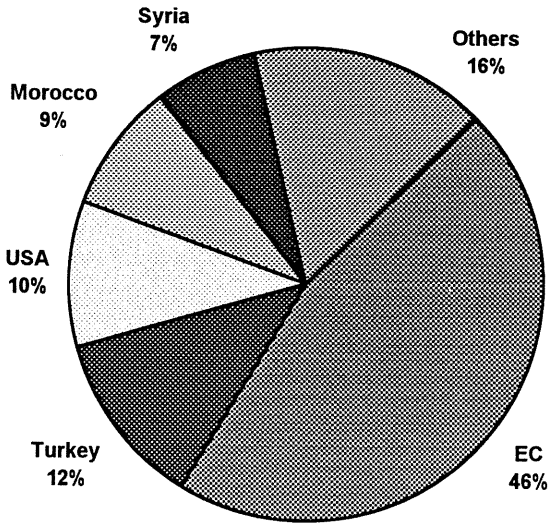


Table Olive Consumption

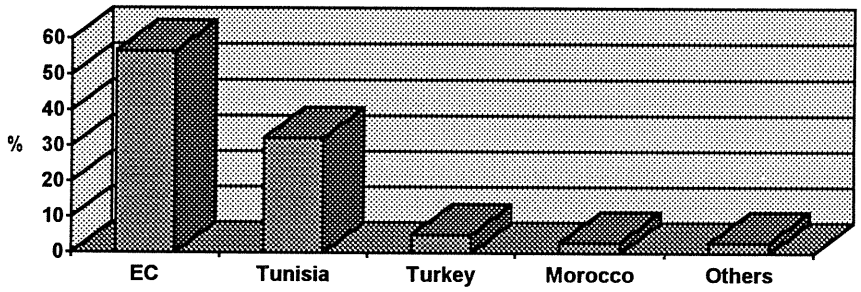
Average consumption between 1988/89-1991/92 was 906,000 tonnes and during this period demand rose by about 1.5% per year. This was a decrease in growth from the period starting 1980/81, when the annual growth rate was 2.5%. However in the past four years consumption has tended to move into line with production and the four year average is 959,600 tonnes per year, with a forecast consumption for 1994/95 of 976,000t.

The leading consumers in the world are the EC (37%), the United States (18%), Turkey (11%), Syria (7%), Morocco (4%) and Brazil (3%).

Table Olive Trade

An average of about 193,000 tonnes or 20% of table olive production was traded on the world market over the four year period 1988/89-91/92. There was no growth during this period with exports remaining steady overall, although there were fluctuations within specific countries. The worlds top exporters are the EC (Italy and Spain) 58%, Morocco (24%), Argentina (10%) and Turkey (4%).

Figure 16: World olive oil exports



The Australian Industry and SA Production

The first olive groves in Australia were planted in 1805 at Parramatta, NSW, and in 1844 Sicilian olive trees were planted in what is now the Adelaide suburb of Beaumont. By 1947 there were 160ha of olives recorded, rising to 1,500ha by 1955.

At present it is estimated that there are about 2,000ha across four states: Victoria (1000ha); South Australia (933ha); NSW (50ha) and WA (17ha). This compares with over 2 million ha in Spain and over 1 million ha in Tunisia, Italy and Portugal with an estimated world total of 8.7 million ha (of which 8.4 million ha are in Mediterranean countries).

Australia imports substantial amounts of both olive oil and table olives. Imports of olive oil increased from about 12,000t in 1989, valued at $32m, to 17,000t in 1992, with a value of about $50m. This represents an apparent per capita consumption of a mere 700g per year. The majority of these imports were from the EC (Spain 53%; Italy 37%; Greece 8%).

Imports of table olives have risen gradually from just over 4,000t in 1985 to almost 7,000t in 1992, valued at $20m. Spain and Greece dominate the market with 54% and 39% respectively. Total annual demand is estimated at 8,000t, amounting to an apparent per capita consumption of 500g per year.

At present imported processed table olives face an import duty of 10% (5% for developing countries), while olive oil is exempt from duty.

Australian olive production has been estimated at 2,500 tonnes per year: Victoria 1,250t; South Australia 1,166t; NSW 62t; WA 22t. (It should be noted that this industry estimate is substantially higher than given by ABS statistics which show only 920t for Victoria and SA combined in 1992.) The majority of production is harvested for pickling (2,000t) and is

bottled or canned in brine for local consumption. Olive oil production is very limited (approx. 100t) and is mainly for consumption by producer households. (It should be noted that 8% of Australia's 16 million population were either born in Mediterranean countries or are of Mediterranean extraction.)

Currently the SA olive industry is split between the Northern Adelaide Plains and the Riverland; roughly 30% and 70% of production respectively. However, the potential expansion of the industry could see more plantings in the Riverland and Mallee regions, taking advantage of relatively inexpensive land and the availability of irrigation water.

Using ABS figures, South Australian olive production (1992/93) was 450t valued at $500,000. However, informed industry sources would estimate these values at two or three times larger. This probably is a result of ABS survey methodology relating to minimum size of production units, combined with some industry activity in the "cash economy".

Industry Organisation

As a major international commodity, olive oil is subject to an intergovernmental agreement drawn up under the auspices of the United Nations Conference on Trade and Development. This is designed to ensure legal guarantees and fair competition in international trade and is administered by the International Olive Oil Council (IOOC). The members of the IOOC are the major producers and there are also a number of observers of which Australia is one. The IOOC functions are: regularising and drawing up rules for international trade; improving production in the olive sector through research and extension, defending and promoting the olive sector through quality assurance initiatives and promotion of health benefits. The IOOC has run a number of information campaigns and scientific conferences in Australia.

The Australian Olive Oil Association (AOOA) is the umbrella group for olive oil importers and covers 90% of the domestic market. Until recently there has been no corresponding organisation for olive growers. However in June 1995 the Australian Olive Growers Association was formed (with assistance from PISA) at a meeting in Mildura. This organisation has representatives from Western Australia, South Australia, Victoria, New South Wales and Queensland.

Markets

At present all Australian olive production is consumed on the domestic market. The potential for niche marketing of premium grade oil and fruit to Asia, USA and Europe may exist.

2.5.3 Economic And Marketing Profile

Summary budgets for olive production are shown below. Details can be found in Appendix 1. These are based on irrigated production.

Item (per Hectare)	Olive Oil	Table Olives
Tonnes	10.79	10
Prices	$810	$1,450
Variable Expenses	$4,680	$10,164
Gross Margin	$4,060	$4,336

Olive oil production figures are based on mechanical harvesting. Table olive figures are based on manual harvesting.

As with other fruit crops, seasonal conditions can cause a great variability in yield (particularly with table olives) and there is a marked biennial bearing characteristic, that is, high and low yields alternating annually.

A preliminary economic study into olive growing and processing (Hobman, PISA, unpublished) looks at three production systems for olive oil production in South Australia. These are the types of options on which the SA industry will be based if it is to succeed:

Model 1: 100 hectares; mechanical harvested and oil processing owned and located on site.
Model 2: 20 hectares; contract harvesting and processing as an addition to established irrigated orchard.
Model 3: 20 hectares; contract harvesting and sale of fresh harvested olive fruit to an oil processing factory (part of an established irrigated enterprise).

A summary of the results of the economic analyses are presented in the table below. Sensitivity analysis shows that profitability is acceptable at higher levels of price and yield for the 100ha model. Non-profitability occurs at low yield levels (8.6t/ha) unless high oil prices prevail.

Summary of Production Systems Average (Achievable) Profit

System	Yields t/ha	Oil Content %	Oil Price $	IRR[1] %	NPV[2] $m	Investment $m
100ha Fruit Processed	10.8	0.2L/kg	4.00/L	12.2	1.4	1.8
20ha Fruit Processed	10.8	0.2L/kg	4.00/L	25.4	0.7	1.5
20ha Table Olives	10.8		0.48/kg	14.1	0.01	0.15

Sensitivity analysis shows Model 2 (20ha) is profitable at each level including the low yield except for the lowest price assumption.

Model 3 shows profitability on NPV at optimistic yield and all price levels; moderate yield and high prices; low yield and the highest price only.

2.5.4 Strategic Analysis

The market for olive products in Australia is substantial and olives are well suited to the South Australian climate. In the past returns have been low due to the emphasis on handharvesting for table olive production, where the labour component accounts for 70% of production costs. New or redeveloped orchards designed for maximum (high density) production and mechanical harvesting offer substantially higher returns and hold the potential for a significant South Australian industry.

[1] IRR - Internal Rate of Return
[2] NPV - Net Present Value of Returns

The volumes of production, and hence market dominance, in the Mediterranean countries would indicate that an emerging Australian industry would need to compete on quality rather than just on price. This is especially true since the major producer/exporters are subsidised through the EC. High grade olive oils can command a premium, but how big is this market and can Australian product break into it?

It is clearly a prerequisite therefore that the industry commissions some market research and benchmarking studies as a matter of priority, to guide its strategic development.

Following the market analysis, there are a number of production based issues which need to be addressed: procurement and assessment of olive varieties to ensure that planting material is the most suitable and productive; determination of key agronomic factors, such as irrigation requirements, fertilisers, etc, to optimise production and access to technical expertise in the processing sector. This last requirement could be contributed by overseas joint venture partners.

In parallel to the development of technical support there will need to be a development of the Industry organisation to facilitate the build up of the industry and technology transfer, but also to establish quality standards and compatibility with IOOC requirements.

Over and above the marketing and technical requirements, there will be the need for the commitment of a significant amount of capital investment. This could come from within Australia or may be attracted from overseas as a contribution of joint venture partners. A number of overtures have been made along these lines in recent times and are being pursued on a "commercial, in confidence" basis.

A SWOT analysis has been developed for the olive industry:

Olive Industry SWOT Analysis	
Strengths	**Weaknesses**
• Availability of well drained, irrigable land in climatically suitable regions • Developed infrastructure and some processing capability • Enthusiastic national grower body	• Yields per hectare on average too low due to old varieties and orchard design • Volume of production low • Low per capita consumption • Undeveloped industry organisation • Need for capital investment
Opportunities	**Threats**
• Replace imports on domestic market • Develop a national R&D Program (rootstock and variety improvement) • Develop domestic (niche) markets • Improve industry cooperation in marketing and promotion • Develop national policy/strategic plans	• Market dominance of Mediterranean countries sets domestic and export prices • Availability/cost of water and land may limit expansion in traditional and "new" areas

Opportunities to Expand the domestic olive oil and table olive industries

a Production

Objective
Facilitate an increase in the volume of premium olive oil production through provision of information/market intelligence and through targetted variety improvement and orchard management.

Outcome
An additional 34,000t of olive oil produced by expanding the area of production using world's best orchard design, planting material, mechanised harvesting and modern extraction plant.

b Marketing

Objective
Improve industry coordination and marketing. Market research and benchmarking are needed.

Outcome
Replacement of a substantial proportion of imported olive products and overall expansion of the market, ie increase per capita consumption.

2.5.5 Opportunity And Roles Analysis

Opportunities and Roles analysis is used to gauge the net present value (and the annual equivalent of that NPV) of the outcome of the potential involvement of PISA/SARDI in assisting industry to capture the opportunities identified for economic development.

The table below summarises the import replacement opportunity for the olive industry, based on an increase in olive oil production of 34,000t over the next twenty years and a projected increase in production of table olives of 990t over the next 20 years.

Opportunity	PISA/ SARDI Role %	Probability of Success %	NPV $	Annuity $	Current Value $	Gain %
Replace Imported Olive Oil	20	90	12.4	2.12	0.5	425
Replace Imported Table Olives	20	90	0.5	0.093	0.25	37

3 FRUIT CROP OPPORTUNITIES AND ROLES ANALYSIS: SUMMARY

The major opportunities, identified and costed from the industry evaluations above, are summarised in the table below.

Opportunity	PISA/ SARDI Role %	Probability of Success %	NPV $	Annuity $	Current Value $	Gain %
Apples - Expanded Export Sales	10	90	4.8m	0.8m	32m	2.6
Apricots - Expanded Export Sales	75	80	12.6m	2.2m	21m	10
Almonds - Replace Imports	10	90	3.9m	0.67m	10m	0.067
Cherries - Expanded Export Sales	10	80	0.45m	0.08m	1.4m	5.7
Replace Imported Olive Oil	20	90	12.4m	2.12m	0.5m	425
Replace Imported Table Olives	20	90	0.5m	0.093m	0.25m	37
Sustainability			155.12m	15.48m		
Total	-	-	189.79m	21.43m	64.9m	-

4 APPENDICES

4.1 GROSS MARGINS

4.1.1 Gross Margin: Apples New Variety Average Yield

Apples-				total ha =	10.0	
Income					$/ha	Total
1st grade	23	tonnes/ha @	$1,200.00	/tonne	$27,000	$270,000
2nd grade	8	tonnes/ha @	$100.00	/tonne	$750	$7,500
less commission @15%					$4,163	
Total					$23,588	$235,875
Expenses						
Plants deprec at 5 % p.a.					$450	$4,500
Chemicals (herbicides)					$200	$2,000
Chemicals (insecticide/fungic)					$1,000	$10,000
Chemical thinning					$100	$1,000
Foliar sprays					$30	$300
Monitoring and leaf analysis					$120	$1,200
Power (5000 kl/ha @ 3c/kl)					$150	$1,500
Water (incl. as power)					$0	$0
Fertiliser					$280	$2,800
Lime					$150	$1,500
Labour					$380	$3,800
Machinery r & m.and fuel at $15/hr					$570	$5,700
Pruning and training 40hrs/ha					$400	$4,000
Hand thinning					$200	$2,000
Harvesting @$80/t					$2,400	$24,000
Storage @ $60/t					$1,350	$13,500
Packing @$70/t					$1,575	$15,750
Freight @ $10/t					$300	$3,000
Bee Hives					$33	$330
Total expenses ($/t) $323)					$9,688	$96,880
Gross Margin					$13,900	$138,995

4.1.2 Gross Margin: Apricots Processing And Juice

Apricots			total ha = 1.0	
				Total
Income			$/ha	
1st grade	19 tonnes/ha @	$650.00 /tonne	$12,350	$12,350
2nd grade	1 tonnes/ha @	$600.00 /tonne	$600	$600
less levy			$60	
Total			$12,890	$12,890
Expenses				
Plants deprec at 5 % p.a.			$90	$90
Chemicals (herbicides)			$220	$220
Chemicals (insecticide/fungic)			$260	$260
Chemical thinning			$10	$10
Foliar sprays			$30	$30
Monitoring and leaf analysis			$120	$120
Power (13000 kl/ha @ 6c/kl)			$780	$780
Water (incl. as power)			$0	$0
Fertiliser			$480	$480
Lime			$0	$0
Labour @ $10			$450	$450
Machinery r & m.and fuel at $15/hr			$615	$615
Pruning mech. @ $80/hr			$200	$200
Hand thinning			$50	$50
Harvesting @$70/t			$1,400	$1,400
Storage			$0	$0
Packing			$0	$0
Freight @ $10/t			$200	$200
Bee Hives			$0	$0
Total expenses ($/t 245)			$4,905	$4,905
Gross Margin			$7,985	$7,985

4.1.3 Gross Margin: Almonds Cool Climate

Almonds			total ha =	40.0	
					Total
Income				$/ha	
1st grade	2 tonnes/ha @	$5,000.00	/tonne	$10,000	$400,000
2nd grade	tonnes/ha @		/tonne	$0	$0
hull/crack	2 tonnes/ha @	$500.00	/tonne	$1,000	$40,000
grd/sort	2 tonnes/ha @	$500.00	/tonne	$1,000	$40,000
Total				$8,000	$320,000
Expenses					
Plants deprec at 3% p.a.				$96	$3,840
Chemicals (weeds)				$200	$8,000
Chemicals (pests)				$300	$12,000
Power				$540	$21,600
Water inclin power				$0	$0
ertilisers				$410	$16,400
Labour 50 hours @ $10/hr.				$500	$20,000
Machinery reps. maint. and fuel 20 hrs @ $15/hr				$300	$12,000
Pruning				$260	$10,400
Harvesting				$380	$15,200
Other costs				$200	$8,000
				$0	$0
Freight				$0	$0
					$0
Total expenses				$3,186	$127,440
					$0
Gross Margin				$4,814	$192,560

4.1.4 Gross Margin: Cherries New System

Cherries-- new System -High yield			total ha =	10.0	
					Total
Income				$/ha	
1st grade	15 tonnes/ha @		$5,000.00 /tonne	$75,000	$750,000
2nd grade	0 tonnes/ha @		$100.00 /tonne	$0	$0
less commission @15%				$11,250	
Total				$63,750	$637,500
Expenses					
Plants deprec at 5 % p.a.				$267	$2,668
Chemicals (herbicides)				$200	$2,000
Chemicals (insecticide/fungic)				$640	$6,400
Chemical thinning				$50	$500
Foliar sprays				$30	$300
Monitoring and leaf analysis				$120	$1,200
Power (5000 kl/ha @ 3c/kl)				$150	$1,500
Water (incl. as power)				$0	$0
Fertiliser				$280	$2,800
Lime				$290	$2,900
Labour 30 hrs				$300	$3,000
Machinery r & m.and fuel at $15/hr				$375	$3,750
Pruning and training 100 hrs/ha				$1,000	$10,000
Hand thinning 20 hours				$200	$2,000
Harvesting @ $ 1.0/kg				$15,000	$150,000
Storage @ $60/t				$900	$9,000
Packing @ $1.2/kg				$18,000	$180,000
Freight @ $10/t				$150	$1,500
Bee Hives				$133	$1,330
Total expenses ($/t$2,539)				$38,085	$380,848
Gross Margin				$25,665	$256,652

4.1.5 Gross Margin: Olives For Oil

Mech. Harv Olives			total ha =	40.0		
						Total
Income					$/ha	
1st grade	10790	kilo/ha @	$0.81	/kilo	$8,740	$349,596
2nd grade		kilo/ha @		/kilo	$0	$0
Total					$8,740	$349,596
Expenses						
Plants deprec at 3% p.a.					$84	$3,360
Chemicals (weeds)					$400	$16,000
Chemicals (pests)					$350	$14,000
Power					$600	$24,000
Water incl. in power					$0	$0
Fertiisers					$190	$7,600
Labour					$500	$20,000
Machinery r & m.					$300	$12,000
Pruning					$56	$2,240
Harvesting					$1,000	$40,000
Other costs					$100	$4,000
Packing					$0	$0
Freight					$1,100	$44,000
						$0
Total expenses					$4,680	$187,200
						$0
Gross Margin					$4,060	$162,396

4.2 REFERENCES

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