R E P O R T

THE FUTURE OF THE GEMBROOK POTATO INDUSTRY & OTHER LAND USE IMPLICATIONS:

A commitment to the next generation?

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Report prepared for Cardinia Shire Council & Gembrook Rural Review Working Group

C A S©
Agribusiness Services

"The Future of the Gembrook Potato Industry & Other Land Use Outcomes: A commitment to the next generation?"

Disclaimer…

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EXECUTIVE SUMMARY…

A CURSORY impression of potato growing in the Gembrook area is one of an industry with an uncertain future.

However on closer examination, the industry does have a future despite the debilitating impact of dieldrin and PCN.

The auras of victim-hood associated with these problems and the "social disease" status of PCN have weighed heavily on both Gembrook growers and the community.

Consumers and retailers are driving changes in overseas and domestic potato markets. These changes have assured Gembrook of an important role in the Victorian potato supply chain. Gembrook's role is to supply high quality, fresh, brushed potatoes that have been grown in red soil. Local packers need the Gembrook potato to fill an important niche market window in the Melbourne market from January to July. Gembrook shares this market slot with other traditional, high rainfall production districts such as Thorpdale, Mirboo North, Warragul, Neerim, Erica, Leongatha, Trentham, Ballarat and Kinglake.

The main threat to the industry comes from the increasing age of its growers and the lack of certainty in the industry that has put succession planning for the next generation of growers on hold.

With only twelve potato growing families remaining in the area, the population of growers has reach a critical mass dilemma. The important question is how many growers are required to sustain a viable industry? The area has only 5 to 10 years before existing growers begin to retire from the industry. Positive decisions need to be made quickly to encourage the next generation of growers to assume control of family farms and leadership of the industry, in order to guarantee their continued presence and employment in the area.

Even though the effects of dieldrin will be felt in the community for many years to come, it does appear that growers do have its management under control. However, PCN, although it is the single most important priority for the Gembrook industry to address, is at a stage where the Australian industry is now being forced to recognise the problem as a pest of national importance. The recent discovery of PCN at Koo Wee Rup provides impetus for the Gembrook industry to give the problem a national focus.

The important Melbourne market is open for Gembrook potatoes, and the opportunity to resolve the PCN issue is begging to be addressed. The only barrier for the local industry is to move on from the past and get on with rebuilding the industry based on cooperation between growers and the adoption of 'best practise' management programs.

The consultant believes that there are four potential scenarios that could be played out over the next five to ten years involving the industry and the community (see Figure 3):

Scenario 1 Rejuvenation of the Gembrook Potato Industry:

Potential Outcomes: That growers take proactive action to rebuild and rejuvenate their industry. This scenario requires: that industry addresses intergenerational transfer issues; actively pursues implementation of a 'Living with PCN and Dieldrin' program; as well as uniformly adopting 'best practise' standards. This being achieved, industry could then be in a position to consider other challenges such as: new marketing and handling arrangements; developing new niche markets and products; new processing opportunities, as well as re-branding and promoting the Gembrook potato.

Scenario 2 The Gembrook Industry Dies Through Natural Attrition:

Potential Outcomes: Industry declines to the point where it ceases to exist. This scenario could involve industry-wide retirements, the sell-off of farms and water rights, the possible closure of local packers and farm support service companies, resulting in unemployment of farm workers, packing shed and industry support staff.

In this scenario, packers could either close their operations or continue operating, sourcing supplies from alternate suppliers at Hillston and Thorpdale.

Scenario 3 Packers & Supply Chain Companies Act to Maintain Supply:

Potential Outcomes: That packers, with cooperation from supply chain companies, could combine their resources to secure product supply by purchasing or leasing farms in the Gembrook area.

This could ensure the continued employment of the previous workforce, as either workers or managers of these new farms.

Scenario 4 New Land Use Options for Gembrook:

Potential Outcomes: Regardless of developments in the potato industry, plans should be developed on future land use options for the Gembrook area. These plans could involve: plans for diversifying the farming and business mix of the area; managing the future influx of 'life-style', or 'Sea Change' hobby farms; and restoring and protecting the natural ascetics, the environment and biodiversity of the area.

In summary, it is the consultant's opinion that any changes to the present situation confronting the Gembrook potato industry are entirely in the hands of Gembrook potato growers, local packers, and agricultural service supply companies. Growers should put the past behind them and take a proactive stance to rejuvenate their industry – this of course will take time and commitment by all concerned.

Whether growers are comfortable with it or not, large packing companies and supply chain companies are now the leading stakeholders in the local and Australian potato industry. In the situation where Scenario 2 might prevail (see Figure 3), this group would become the main stakeholders that could keep potato production going in the Gembrook area. For this reason, it will be important to get a more detailed understanding of the intentions of this group, by keeping them informed of developments in the project.

Successful case studies of other rural community action groups always seem to have at their core a dedicated 'champion', a person who takes up the challenge to drive the change process. These types of people have very special skills, talents and energy. In most cases, they are dedicated volunteers, who very often do not have any background in a particular industry. In the case of the local potato industry and the Gembrook Rural Review Working Group, identification and recruitment of such a person or persons will be an important priority for the Gembrook community ■

Project background…

This report provides an over view of what is happening in potato markets in order to provide some guidance for the Gembrook potato industry on what the future holds for the production of fresh potatoes in the area.

Since the detection of dieldrin contamination on potato farms and in beef cattle in Gembrook in 1987, and the subsequent discovery of the *Potato Cyst* nematode pest, in 1992. Gembrook potato growers have been severely restricted in carrying out the day-to-day business of growing and marketing potatoes. The identifications of these two problems have had a significant impact on growers' incomes, the general economy and employment in the area, as well as a negative affects on the morale of families and workers involved in the industry.

As a consequence, the number of growers has halved from around thirty families prior to dieldrin, to twelve now.

In order to plot a successful future direction for Gembrook potato growers it was decided by the Gembrook Rural Review Working Group to determine what the actual market situation was for the Gembrook potato industry.

This project examines what is presently happening in global and Australian potato markets, and provides advice on the market outlook, consumer trends, and market opportunities. The analysis also assesses through a qualitative interview process, the responses and views of 49 stakeholders concerning the situation in the Gembrook potato industry, and whether the industry is in a positioned to take full advantage of future market opportunities.

The Project Proposal…

To assess the future sustainability of the potato industry and associated farm enterprises in the Gembrook area, according to the requirements of the project brief.

Stage 1 Objectives – Market Analysis and Stakeholder Consultation Process…

The objectives of the project are:

- To gain a thorough understanding of the future market potential for potatoes from the Gembrook area;
- To investigate the effects that problems such as dieldrin, PCN, and the future availability of irrigation water are likely to have on the viability of the potato industry in the area; and
- To investigate the impact that these problems are, or are likely to have on alternative agricultural enterprises in the area.

Developments in the Consultation Process…

- The project commenced on January 12, 2004
- 50 stakeholders were interviewed in the following categories:
  - Council staff - 3
  - Shire councillor - 1
  - Potato industry - 4
  - Growers - 9
  - Young growers - 3
  - Ex-growers - 1
  - Packers - 3
  - Processors - 2
  - Retail & supply chain – 2
  - Real Estate - 5
  - Service sector – government (R&D, marketing, water, environment, land care, rural finance, training & employment) - 12
  - Service sector (commercial) - 1
  - Other (business development) - 4

Production, market trends & outlook…

Global Production:

The fresh potato industry plays a major role in the global fresh produce sector. This sector is in a constant state of adjustment as it responses to the constantly changing, needs, demands, whims and fads of the market place. Consumer and retail demand are driving these changes.

What happens overseas has an immediate and direct effect on the Australian potato industry, including Gembrook potato growers. In world terms, Australia is a small potato producer (0.5% of world production). Emerging production and market trends in the international potato sector provide fairly accurate forecasts of future developments in the Australian and Gembrook industries.

No longer is it possible to just produce potatoes and hope to sell them. Today's markets are highly sophisticated and are driven by the demands of consumers. The retail sector through the dominance of supermarkets is finely tuned to the needs of the market place, setting the agenda for all sectors of the potato industry.

According to Professor Ron Voss of the University of California, Davis, speaking at the National Potato Business and Marketing Conference in Mount Gambier, South Australia in August 2000. World potato production increased from 266 million tonnes in 1990 to 328 million tonnes in 2002, an increase of more than 20%. These potatoes were grown on 175 million hectares in 1990 and 199 million hectares in 2000, an increase of 13%, with a corresponding increase in yields from 15.1t/ha to 16.4t/ha, an increase of 9%.

A major factor for these increases was China, whose production doubled during this period and accounted for one-half of the world's increase in production, and 80% of the increased acreage. China, with one quarter of the world's population, now produces one fifth of the world's potatoes.

Australian Production:

Changes in production across Australia are in response to changing consumer preferences and the ability of the industry to supply the right potatoes at the right price for the market.

In Australia, there are around 1,894 potato growers with an average age of 57 years (Rodda, 2000). Production has increased over the last 18 years by 56% from 854,179 tonnes in 1984 to 1.3 million tonnes in 2002 (ABS, 2004). During this period, Victoria production declined by 19% to 294,544 tonnes, losing its role as Australia's leading potato producer to Tasmania and South Australia respectively (Table 1).

The structure of the Australian potato industry has been changing rapidly, driven by consumers who are reflecting their demand for cooking convenience and products that compliment an eating away from home life-style. According to Rodda (2002), thirty years ago, no potatoes were processed in Australia, by 2000, 65% of potatoes were processed into fries or crisps. In that time, fresh production has declined from 100% to 35%.

Table 1: Australian Potato Production by State (tonnes) 1984 – 2002

State	1984 (tonnes)	1984 % Aust. Prod.	1984 Order of Importance	1990 (tonnes)	1996 (tonnes)	2002 (tonnes)	2002 % Aust. Prod.	2002 Order of Importance	% Change 1984 – 2002
VIC	362,379	33.6	1	368,409	335,649	294,544	22.1	3	(-) 18.7
TAS	213,090	20.3	2	297,488	302,035	350,134	26.3	1	64.4
SA	120,748	11.2	5	161,257	282,568	334,697	25.1	2	177.3
NSW	129,564	12.7	4	130,109	162,456	158,526	11.9	4	(-) 2.5
Qld	123,983	14.1	5	121,909	103,845	117,920	8.8	5	(-) 4.9
WA	69,566	8.1	6	98,705	121,546	77,338	5.8	6	11.0
NT	510	0.06	7	----	----	----	----	----	----
Totals Production:	**854,179**			**1,546,286**	**1,308,099**	**1,333,158**			

Source: ABS, 2004

With the exception of the French fry and potato seed production sectors, growing potatoes has moved to new centres of production, reflecting the changing needs of the market place and the agronomic needs of specific potato varieties. Production of French fry and seed potatoes are still centred around the heavy red soils of higher altitude and higher rainfall regions of Australia (Tasmania and Victoria), while production of fresh and crisping potatoes has moved to the sandy soils of the wheat belts of South Australia and north west Victoria, as well as the broad acre red soils (fresh potatoes) of Hillston in NSW. These new farms are based around large, broad-acre 'gypsy' farming operations, moving from one wheat farm to the next – using large-scale irrigation equipment on greenfield production sites. In the case of the fresh industry, sand grown potatoes are generally cleaner and are used in the washed potato trade, while the red soils of Hillston provide large volumes of brushed potato (covered with a fine red loam) for the specialty brushed market. Gembrook is also a niche producer in the brushed market.

The restructuring of the industry in recent years is illustrated in the Australian production statistics (see

Tables 1 and 2) with Tasmania's production rising to prominence in French fry potatoes, and South Australia as the leading producer of fresh and crisping potatoes, while Victoria maintains its lead in seed potato production (see Table 2).

Table 2: Order of Importance of Australian States in Each Production Sector (1996)

State	Fresh	French Fries	Crisps	Seed
VIC	2	2	2	1
TAS	6	1	----	2
NSW	3	4	4	3
SA	1	5	1	5
QLD	4	----	3	6
WA	5	4	5	4

Source: ABS, 2000

Over the 18 years from 1984 to 2000, Australian potato productivity per hectare rose 12.7%, while Victoria's rose by 25.7%. While the value of Australian production rose by 35% from $339.4 million in 1992 to $458.3 million in 2000 (Table 3).

Victorian Production:

The majority of Victoria potato production is still in fresh potatoes, however, its leadership is in the area of seed production (see Table 4).

Table 3: Value of Australian Potato Production (AUS $) 1992 – 2000

State	1992 $M	1992 Order of Importance	1996 $M	2000 $M	2000 Order of Importance	% Change 1992 – 2000
VIC	88,718,402	1	114,237,161	115,791,972	2	25.3
TAS	51,753,034	5	66,828,403	68,999,846	4	15.0
SA	57,719,069	2	102,735,598	123,522,676	1	27.0
NSW	53,885,437	4	49,803,468	72,021,362	3	15.7
QLD	54,154,136	3	42,513,375	46,778,973	5	10.2
WA	33,170,344	6	35,655,051	31,184,728	6	6.8
NT	----		----	----	----	----
Totals Aust. Prod.	**339,400,422,**		**411,773,056**	**458,299,557**		**35.0**

Source: ABS, 2004

As in the rest of Australia, production has moved away from traditional high rainfall production areas such as Gembrook, Ballarat and Thorpdale, to new production areas in the wheat country of the north of the state and the Mallee wheat belt of South Australia. These production areas have ready access to irrigation water from the Murray River and large ground water reserves along the South Australian/Victorian border (see Figures 1 and 2).

Table 4: Victorian Potato Production by Sector (1996)

Product	Production (tonnes)	% of Victoria's Production
Fresh	155,450	46.3
French Fries	84,043	25.0
Crisps	37,942	11.3
Seed	58,214	17.3
Total Production:	**335,649**	

Source: ABS, 1996

** Total processing potato production (fries and crisps) - 36.3%*

The problem with traditional potato production areas is that they are too small, too difficult to work because of their hilly topography, and they have too many soil problems associated with continuous cropping over the last 50 years.

The important advantages of new production operations in sand belt country are:

- They produced two crops a year (compared to one in Gembrook).
- Growers generally lease land - not own it.
- Size of farms allows for economies of scale.
- Supplying year-round product to supermarkets.
- Seldom run into pest and disease build up in their soils.
- Produce consistent high quality potatoes.

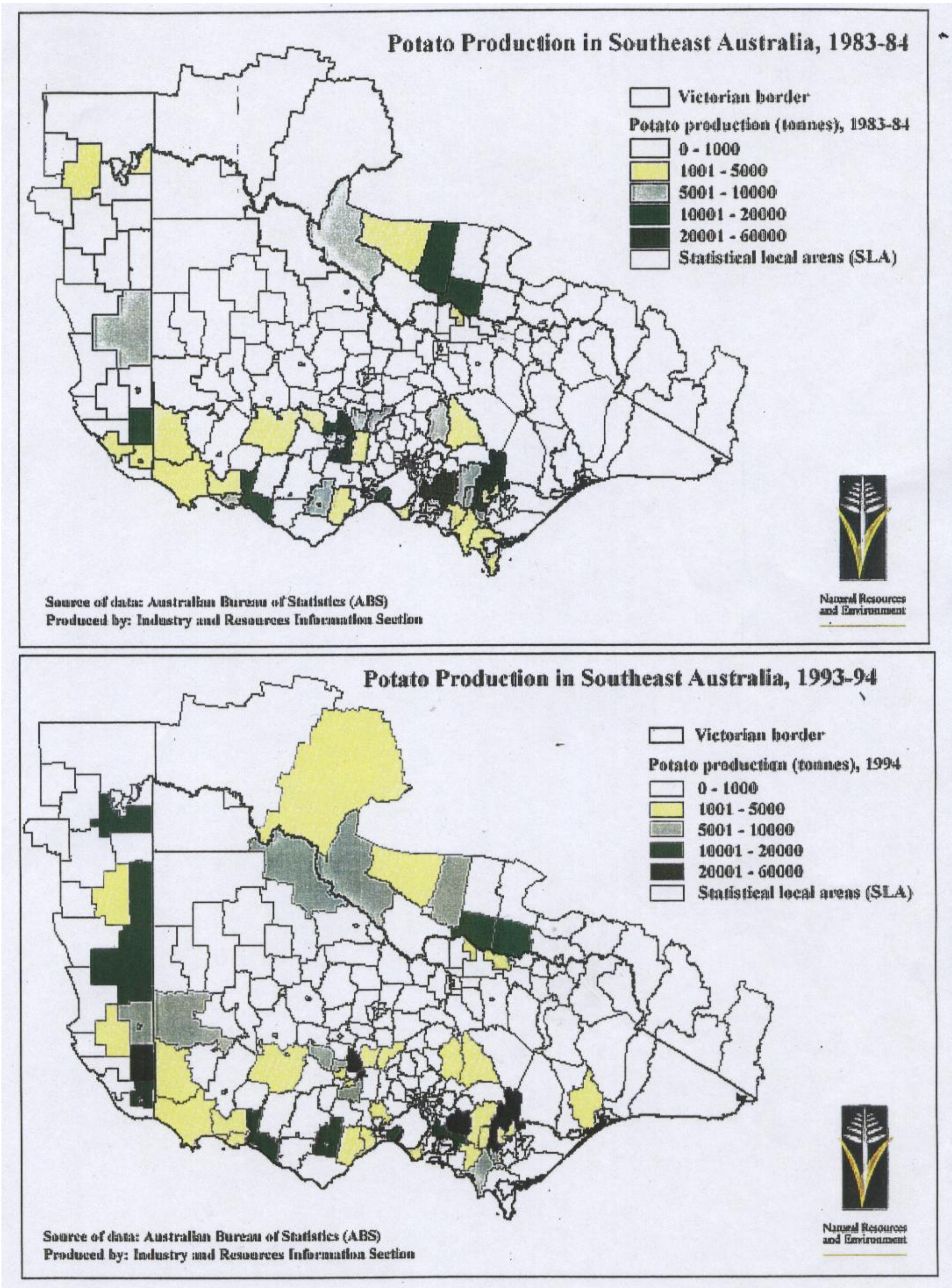
These operations lease or own properties up to 5,000 hectares in size and crop up to 800 hectares per year, compared to a maximum size, annual crop of 40 hectares in Gembrook. One centre pivot irrigation machine on these farms can irrigate an area equivalent to the annual production of one farm in Gembrook. These farms can operate as many as six irrigators simultaneously.

While these developments have changed the face of the Victoria potato industry. Areas such as Gembrook and Thorpdale are a contradiction to these changes because strong demand still exists in the Melbourne market for quality brushed potatoes from traditional production areas.

Gembrook's Production:

Accurate statistics were difficult to find for the Gembrook and Cardinia areas post 1995, due to changes in the Australian Bureau of Statistics local census data boundaries (ABS, 2004 and Pickersgill, 2004). Gembrook is a relatively small potato production area, representing 4.1% of the total production area of potatoes in Victoria (1995) and 1.1% of Australia. Production figures for Gembrook (ABS, 2004) declined by 54% from 20,736 tonnes in 1984 to 9,544 tonnes in 1995 (see Table 5). While plantings have also declined since 1984 by 48% from 796 hectares (26t/ha) to 414 hectares in 1995 (23t/ha).

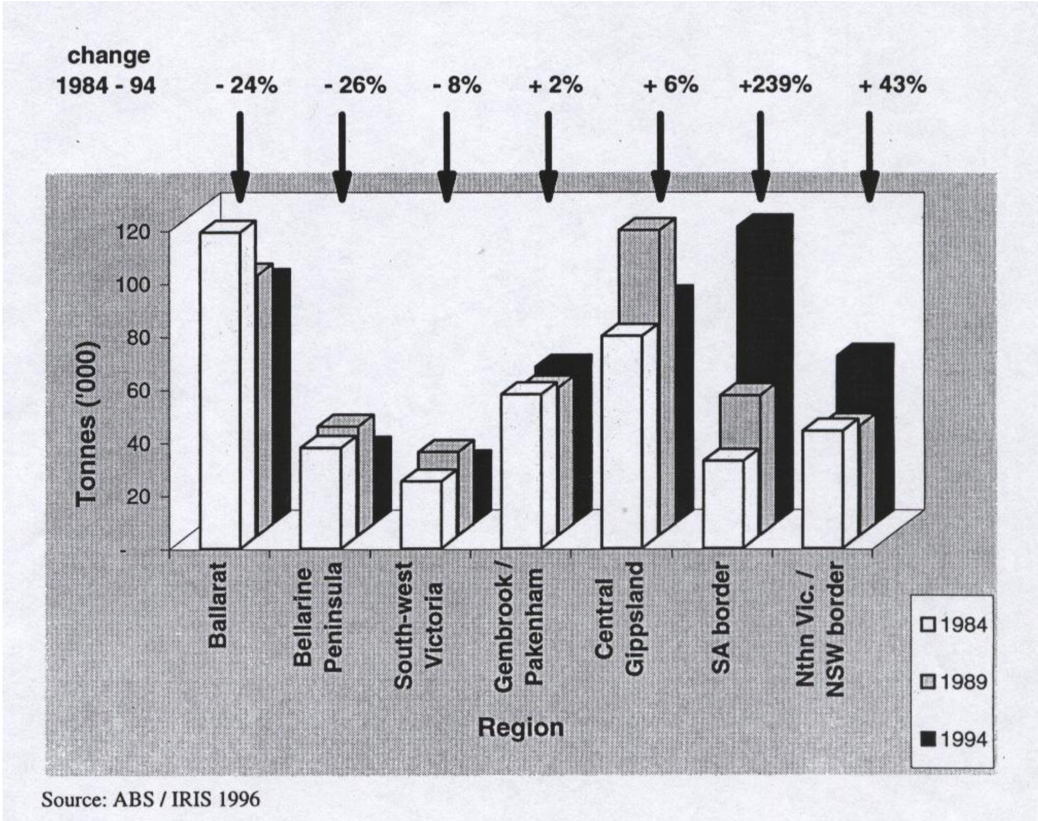
Figure 1: Potato Production in Southeast Australia 1983-84 & 1993-94



Source: DPI, Victoria, 2000

The reason for this production decline has been mainly due to the discovery of dieldrin contamination in the late 1980's and the identification of *Potato Cyst* nematode in 1992. Both these discoveries have had a devastating impact on the confidence and morale of growers in the area. The outbreak of PCN has been the most difficult, with the sale of potatoes being banned for quarantine purposes on interstate markets. Brushed Gembrook have always had a big reputation for quality, and as such, used to command a major share of interstate markets. Before these problems were discovered, Gembrook sold more than 80% of its' potatoes interstate for a premium price.

Figure 2: Changes in Potato Production in South Eastern Australia from 1984-94



Gembrook potatoes are now confined to sales on the more price sensitive Victorian market, between January and July. Gembrook shares this market slot with other traditional, high rainfall production districts such as Thorpdale, Mirboo North, Warragul, Neerim, Erica, Leongatha, Trentham, Ballarat and Kinglake.

Packing, distribution and marketing is limited to two local packers who only accept the premium brushed variety, Sebago from local growers.

Table 5: Gembrook Production & Areas (1984 & 1995)

	1984	1995	Change %
Production (tonnes)	20,736	9,544	(-) 54.0
Area (hectares)	796	414	(-) 48.0
Productivity (t/ha)	26	23	(-) 11.5

Source: ABS, 2004

Overseas Market Trends & Outlook:

Worldwide, the consumption of processed potatoes (fries and crisps) is increasing more rapidly than fresh. Life-style and convenience are the main influences behind these changing patterns of consumption (Cadman, 1997).

The story of processed versus fresh consumption is repeated consistently throughout the world – as countries economic wealth or standards of living increase, the share of processing increases, as well.

Many traditionally rice-eating cultures have increased the relative importance of potatoes in their diets (Cadman, 1998). While many European countries, with high standards of living, continue to consume large quantities of fresh potatoes; international consumption statistics indicates that western cultures are also eating less fresh potatoes, substituting potatoes for increasing consumption of rice and pasta in their diets.

Australian Market Trends & Outlook:

Fresh potatoes are produced and available year-round within Australia, with all states contributing to the annual supply cycle. They are a cheap and versatile vegetable that is consumed weekly in almost all Australian households. Total Australian consumption of all potato products per head is in the vicinity of 68kg per annum (HAL, 2002 and ABS, 1999), and consumption of fresh potatoes is 31.5kg per annum (McKinna, 2003). Potatoes represent Australia's largest vegetable commodity.

According to Rodda (2002), growth within the domestic processing sector has commenced to level off.

Rice, pasta and noodles are increasingly serious competitors for potato consumption in Australia.

Health issues associated with child and adult obesity are predicted to become a future threat to processed potato (fries and crisps) consumption in Australia and overseas.

Consumer life-style issues, convenience, quality and food safety are driving changes in demand for potato products in Australia. In order to satisfy these needs, the retails sector, particularly supermarkets have become highly focused on consumer needs, such as the strong demand for quality, washed and brushed potatoes (see Table 6).

Table 6: Changes in Fresh Potato Consumer Preference for Fresh Potatoes (1993 to 1998)

Preference	1998 Survey* Preference %	1993 Survey Preference %
Washed	57	48
Brushed	21	26
Dirty	19	26
Loose	40	n/a
Packaged	58	n/a

Source: APIC & HRDC, 1998

Super markets are now the dominant retail outlets for potatoes in Australia (see Table 7).

Table 7: Role of Retail Sector - Distribution Buying Data (2000)

Retail Distribution	% of Purchase	AWOP (kg) *	Volumes (tonnes)
National	90.6	22.1	1,26,178.3
Sydney	86.6	18.7	22,592.8
Melbourne	89.1	21.8	25,518.2
Brisbane	91.7	24.9	19,496.4
Adelaide	89.0	22.3	9,721.5
Perth	93.8	22.5	11,146.9
Woolworths/Safeway (national)	51.9	11.2	36,707.3
Coles/GHPL	46.4	10.4	30,479.1
Franklins (national)	19.2	8.3	10,032.5
Other (national)	22.4	9.4	13,306.7
Supermarkets	83.7	17.1	90,525.5
Non-supermarkets	41.4	13.7	35,652.8

Source: AC Nielsen, 2001
** AWOP – Average weight of purchase*

In order to have year-round supplies of high quality washed and brushed potatoes, and to reduce the number of suppliers that they have to deal with, supermarkets have formed alliances with large supply chain companies, who supply all their potato needs (Morey & Sully, 1999). Growth in the dominance of supply chains companies has become a major feature of the Australian fresh produce sector over the last 10 years. In Victoria, there are five main supply chain companies that supply potatoes, two with direct supply links to the two main supermarket chains, and three large independent suppliers (one from Victoria and two from SA).

Another new feature of the Australian market is the entry of service provision companies (agricultural chemical and fertilizer companies) offering exclusive access to new and elite varieties of potatoes to retailers, supply chain companies and growers. These varieties are part of a privately owned gene pool of potato varieties increasingly owned by large agribusiness companies. These companies through special commercial agreements, purchase the exclusive rights to sell and trade with these varieties through international patenting, plant breeders' rights, or plant variety rights agreements. The owners of these rights, whether they are actual breeders or second parties, who buy or lease the rights to these varieties, receive royalties either from the grower, supply company or retailer for the use of these varieties. These varieties usually have special features that are attractive to consumers and other members of the supply chain. These groups are usually happy to pay a premium for these features. This trend puts further pressure on independent growers who are tied into to growing common public domain varieties eg. Sebago. Growers of public domain varieties are increasingly being locked out of special marketing and price premium arrangements in the new market place.

While Australian exports of fresh potatoes have grown to AUS$10.9 million and processed exports to AUS$10.5 million (2001). There are no opportunities for export of Gembrook potatoes, because of import quarantine restrictions associated with PCN. However, in the future, there maybe some opportunities for Victorian peeled potatoes exported into Japan and Korea, as the peeling process removes both the nematodes and the cysts.

Market Outlook for the Australian Industry…

A detailed market study undertaken by McKinna for the Australian Potato Industry Council and HAL in 2001, identified opportunities to expand the Australian potato industry through a combination of domestic and export activities. Whilst domestic per capita consumption is falling, there were indications that these markets could be stimulated by product differentiation and promotional activities.

The following comments directly refer to McKenna's recommendations on the market outlook for fresh potatoes. These recommendations have direct and positive implications for the Gembrook potato industry, if it is prepared to take a proactive stance on fresh marketing.

Fresh Potatoes…

McKinna's reported that the following factors have contributed to a decline in fresh potato consumption:

- Strong competition from foods such as rice and pasta.
- Poor and inconsistent quality.
- Lack of promotion.
- Lack of consumer education about the best ways to use them.

Other issues that were also impacting on reduced consumption were:

- Potatoes are typically seen as traditional and boring, with consumption heavily skewed towards older consumers.
- Appearance and availability of variety choice were also seen as the major drivers of potato purchase decisions.
- Consumers are placing increasing emphasis on the cosmetic appearance of potatoes.
- Consumer expectations regarding potato quality are not being met. A 1998 survey concluded that the three major supermarket chains as well as greengrocers supplied poor quality potatoes.
- Consumers don't appear to be price sensitive about potatoes.

Domestic Market Still Provides Growth Opportunities…

The domestic market still provides good opportunities to:

- Increase market size.
- Increase value of sales.

Whilst domestic per-capita consumption is falling there are still opportunities to generate growth, added value and prevent the expected decline in consumption by:

- Product differentiation - labeling loose potatoes based on "fitness for specific use".
- New packaging.
- Value-adding eg peeling.
- Generic promotion of nutritious and convenience benefits.
- The best opportunity to improve industry returns will come from value-adding on the domestic market.
- Food service market: must ensure either processed or fresh potatoes are present in restaurants, canteens, take-aways, etc.
- A need to maximise opportunities in the convenience, take home market.

Processing Opportunities from Waste Potato Products…

A study undertaken by Meyers Strategy Group in 1996, looked at the processing opportunities from waste potato products in Australia (Freeman, 1996). Recommendations from that report ranked these opportunities in the following way:

1) Stock feed.
2) Ethanol fuel production.
3) Potato starch production.

One of the main issues associated with the use of potato waste from packing and processing facilities around Victoria was the physical and economic feasibility of bringing together such a widely dispersed waste stream into one site for processing.

In the end, the opportunity was thought to lie in growing potatoes specifically for processing, using specific, high yielding, and high starch producing varieties. It is believed that some of these varieties are resistant to PCN.

The Market for Gembrook Potatoes is Still Strong:

Where do Gembrook potatoes fit in this changing production and market environment?

The Gembrook industry has been both a casualty and a benefactor of the changing industry scene! Despite the pressures of change, dieldrin contamination and PCN outbreaks, Gembrook remains in a unique position where its' fresh potatoes fit into a special production and supply niche in the Melbourne market from January to July (see Table 8).

Because of this special production niche, and the excellent reputation of Gembrook potatoes for quality, matched by strong consumer demand for brushed potatoes from red soil country – Gembrook potatoes remain in strong demand in the Melbourne market place.

Local packers report that their annual supply operations are dependent on the regular supply of Gembrook potatoes. Packers have said that they are committed to sourcing potatoes from Gembrook. However, reports of local produce being pushed aside in preference for other potatoes brought in for packing from Hillston and Thorpdale seems to contradict these claims. These actions might reflect particular supply agreements with contract suppliers outside the district, which include the packers own production sites at Hillston.

Another important feature of the Gembrook industry is its support by the two district packers. One packer is a major supply chain company in its own right; with strong links with major national supermarket chains and the other, is a well-positioned independent supplier to the general retail sector. Without these packers and market support mechanisms, it is questionable whether the industry would have lasted this long.

In order to ensure the throughput of Gembrook potatoes across their packing line, one local packer reported resorting to share farming to maintain supply from the Gembrook area.

If the supply of potatoes from Gembrook was to fall even further, as a result of future grower retirements from the industry. It is assumed that packers would substitute local produce with potatoes brought in from Hillston and Thorpdale □

Table 8: Seasonality of Potato Harvest in South East Australia

Region	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Thorpdale (VIC)												
Ballarat (VIC)												
Robinvale (VIC)												
Mt Gambier (SA)												
Hillston (NSW)												

Source: DPI Victoria, 2001

Key issues affecting the Gembrook industry…

The key issues impacting on the local potato industry are: agronomic, water, economic, land zoning and generational (Pickersgill, 2003).

The discovery in the late 1980's of dieldrin contamination of district soils caused by previous pest control practises, as well as the discovery of *Potato Cyst* nematode (PCN) in 1992 have caused the main problems for district potato growers.

Quarantine regulations limiting the sale of Gembrook potatoes to the Melbourne market have removed growers' ability to trade on more profitable interstate markets, such as Sydney. This has had a major financial impact on growers and the community, because they are restricted to packing through two local packers who are said to pay between $100 to $150 per tonne less for Gembrook potatoes than for Thorpdale potatoes (grown outside the 20 km radius quarantine area). Growers feel that they are at the "mercy" of these packers.

Recent changes to the capture and use of irrigation water and the moratorium on new water catchments

(The Water Act, 1989) has put further pressure on growers management practises.

Issues such as small farm size, and the hilly nature of the country makes them less economically efficient compared to larger farms on flat sandy country. Continuous cropping of these small farms has also contributed to the serious built up of pests and diseases problems in these soils.

The recent introduction of land subdivision restrictions through the 'Planning and Environmental (Metropolitan Green Wedge Protection) Act, 2003', have added further to the woes of older growers wishing to sell their land for superannuation and retirement purposes.

The average age of Gembrook growers is in the late 50's to mid 60's. Most are looking to retire in the next 5 to 10 years. Because of the ongoing problems of dieldrin and PCN, succession planning has been put on hold. The district is now heading for an intergenerational changeover crisis □

Attempts to diversify & resolve key issues…

In the past growers have actively pursued diversification strategies. In the past unsuccessful attempts were made to diversify into carrots, asparagus, broccoli, hydroponic tomatoes and ostriches.

In most cases, problems were experienced due to lack of knowledge of growing and management practises of these new crops. However, the main problem seemed to be associated with time commitments. Growers spoke about difficulties in finding enough time to devote to the new enterprise, while still trying to grow potatoes.

Local industry leaders have also worked unsuccessfully, since 1992, to develop and introduce PCN protocols into the industry □

Demographics, economics & attitudes…

Demographics:

Since the dieldrin problem was first found, the number of potato farmers in the area has dropped from around 24 to 12.

The average age of farmers is in the late 50's to the mid 60's (Barr, 2001). These farms are run as family operations, with field operations managed by father and son teams. Younger generation growers' ages' range from mid the 20's to mid 40's. A substantial proportion of existing growers are from Italian cultural backgrounds.

Since dieldrin and PCN, no new growers have come into the area.

Economics:

The continuing effect of dieldrin and PCN on these farms has had a significant influence on farm incomes. Farm planning and improvements have been in holding mode since dieldrin and PCN, while farmers waited to see what might happen.

Incomes have dropped as a result of these problems. With growers and their extended families struggling to earn a reasonable income from their farms (Aitken, 1996).

General Attitudes:

The impact of these two problems has had a depressing affect on growers' attitudes to the future. They have developed a victim or siege mentality, where the rest of the world is lined up against them. This has proved to be a mental mindset that has not been conducive to positive thoughts, ideas and plans about the future.

Succession Planning & Generational Change:

Lack of certainty has also put succession planning on hold for most of the potato growing community. The impact of this lack of planning is about to be felt as farmers now start to consider retirement □

Attitudes of older growers…

Older growers spoke about feeling like victims, with everything and everyone lined up against them. As a result of this, they felt tied and have had enough – they felt it was time to retire.

Part of the retirement process that they have planned, involved sub-dividing or carving off from their farms, a house block for themselves to build a new home on, as well as, a few blocks to sell off at a later date for future retirement income purposes. However, they now feel that government is hindering them once again, with Melbourne 2030, Green Wedge regulations blocking any hopes that they might have had for the future and a comfortable retirement.

Older growers also had major concerns about what was going to become of their children who have worked on their farms? All growers expressed a wish to pass on their farms to their children, but it appears to them that Green Wedge would put a stop to that! □

Attitudes of the new generation of growers…

Of the young growers interviewed, most were uncertain of the future. They found it difficult to surviving on low farm incomes. Most had young families to support, and some had off-farm incomes to supplement their farm incomes.

For some, potato farming is all they know, with some young growers starting in the industry at 14 years of age.

The positive thing about these interviews was that young growers wanted to stay on their farms and give it ago. However, they saw their families' attitudes to the future of the industry as negative, but with good reason.

Some said that they would do what ever it took to survive and remain on the land □

Old problems…

Old problems that have haunted the Gembrook potato industry for the last 16 years have been dieldrin contamination and the identification of PCN in local potato crops in 1992.

Dieldrin:

Dieldrins use was prohibited in Victoria when it was found in a range of agricultural industries in 1987.

It was used in potatoes and bulbs for the control of the native click beetle. Since its identification, a national plan was devised for managing contaminated areas (National Organo-chlorine Residue Management Plan).

Dieldrin is known to remains stable in soils by attaching itself to soil particles, and is reported to have a presence in soils for 30 to 50 years. Residue retesting in the area, indicates that contamination levels have not changed since 1987.

Dieldrin is an unresolvable issue for the area, there are no options, and so the area is stuck with the problem. During this period, growers and the community have learnt to live with it.

In Gembrook, 97 properties are reported to be effected by dieldrin (25% of the area), with a total of 228 properties having cattle on them (DPI, 2004).

Average levels found in agricultural soils in the area are approximately 3.5 ppm (EPA consider this to be a low level). This level is satisfactory for everything other than agriculture.

The main concern with dieldrin is with cattle, as they readily take up the chemical and store it in body fatty tissue. This is an important problem for potato growers, because part of their rotational cycle is to rest paddocks as pasture, and to run cattle on them. To reduce the dieldrin build up problem in their cattle, they must agist their cattle on clean country for 6 to 7 months to decontamination them. This practise means that farmers loose money on their cattle because they can't be sold in prime market condition.

Other animals such as sheep metabolises dieldrin much more quickly and are not as likely to find their way onto residue sensitive export markets.

Unpublished research undertaken by DPI, suggests that dieldrin is not taken up by the vascular tissue of plants, but can be assimilated into leaf tissue of plants grown close to the soil through a volatilisation process eg. green tea or mint.

Dieldrin represents a problem for hobby farmers who run cattle on small properties because they are generally not in a position to agist cattle off site. Tracing cattle from hobby farms is also a problem for regulatory authorities. Problems with cattle on small hobby farms became a problem in the in Stanley area (similar red soils to Gembrook).

Crops and livestock that are less prone to contamination are: vines and tree crops, regularly cut lucerne, horses and sheep. Enterprises susceptible to contamination are: cattle, ground foraging birds (emus, ostriches, ducks, free range chickens).

PCN:

PCN is the areas main problem. It was first identified in Gembrook in 1992, and has been found to still be present in recent DPI re-samplings of original outbreak sites. It is one of those persistent problems that are not likely to go away for at least another 15 to 20 years.

Following the recent outbreak of PCN in Koo Wee Rup in January 2004 (Weekly Times, 2004), it has become a national problem, having reached the status of a "social disease" that no one wants to admit to, face up to, or deal with. Unfortunately, Gembrook, Koo Wee Rup and even Victoria are presently being labelled by other states as national pariahs.

Other states have used this recent outbreak as a chance to imposed quarantine barriers that have been likened by some industry spokespersons to trade barriers, where "scientific reason has been thrown out the door."

Industry and scientists believe that PCN should be widespread around Australia, following the industry wide practise of transporting dirty bins around all potato production areas of Australia during the 1980's. The general feeling in scientific circles is that "if we looked hard enough – we would find it."

The recent Koo Wee Rup outbreak has caused local crisping potatoes to be banned from being moved to processing plants interstate. This has helped shine a national spotlight on the PCN problem. This situation represents Gembrook's best chance yet to get a national focus on the PCN problem that could lead to the development of national PCN protocols for the management and handling of potatoes.

The Victorian Potato Industry Council are presently working on protocols that will change the quarantine regulations from the present 20km radius (from an infected outbreak site) to restrictions based on specific outbreak sites. If such a protocol can get national endorsement, then interstate trade could then be resumed and life might return to normal for Gembrook growers. Local growers who have not had PCN identified on their properties are still not supportive of district wide testing for fear of "having it" found on their properties.

Even though management of the pest is costly, European growers have learnt to live with it for years. Opportunities exist to invite overseas scientific specialists to Victoria to work with DPI, Gembrook and Koo Wee Rup growers, to assist in the development of management strategies for the pest. The presence of such an expert group would have the effect of forcing the national industry to accept the national importance of this pest. Thereby forcing industry to commit to a national program of testing, containment, and management.

Other strategies for containment and elimination could include the use in Gembrook of resistant fresh and crisping potato varieties, many of which are in strong demand by consumers □

New complications…

Urban Growth Boundaries & Green Wedge:

New urban growth boundaries introduced by the state government as part of it's metropolitan planning strategy, Melbourne 2030, in October 2002, will complicate retiring potato growers plans to leave the industry, by preventing subdivisions of rural land within the newly declared boundaries.

The purpose of the urban growth, boundary was to control outward growth of Melbourne and to protect the Green Wedge area of Melbourne from inappropriate development. Land in metropolitan council areas outside the urban growth boundary is defined as Green Wedge (which includes Cardinia).

The principal urban growth boundary in Cardinia is around the urban growth area in Beaconsfield, Officer and Pakenham. An urban growth boundary has also been established around the Gembrook township based on the Gembrook Township Strategy. The Green Wedge planning provisions therefore affects the land in the Gembrook Rural Review, excluding the land within the urban growth boundary around the Gembrook township.

The purpose of the Green Wedge planning provisions is to protect the agricultural, environmental, natural resource, public infrastructure and recreational values of non-urban land around Melbourne by controlling the fragmentation of land (subdivision) and inappropriate development.

New Water Allocation Regulations:

The introduction of new regulations on the capture and use of irrigation water from dams, covered by 'The Water Act, 1989', is also seen as a newly imposed barrier for the local potato industry.

PCN at Koo Wee Rup:

Although the recent PCN outbreak at Koo Wee Rup is perceived by Gembrook growers as just another complication for their industry (Dunlop, 2004). It could be seen as the best opportunity yet for Gembrook growers to break the PCN nexus and their isolation from the rest of the industry.

The negative feelings associated with PCN concerning blame, finger pointing, claims and counter claims are not solving the problem. Victorian grower demands for tit-for-tat regulations and restrictions on interstate imports of potatoes into Victoria could have negative ramifications for Gembrook and district packing plants that import and pack potatoes from Hillston, NSW.

The outbreak at Koo Wee Rup is a chance for Gembrook to take a proactive stance against PCN in the form of a "coming out" or recognition of the PCN pest for what it is.

There is a real need for industry cooperation and leadership on this issue. Gembrook in collaboration with Koo Wee Rup could take the national lead in PCN management by adopting voluntary protocols for the management and containment of this pest □

Retiring & leaving the land, sub-divisions, superannuation & equity issues…

Retirement & Family Commitments:

Most growers have had family assisting them on their farms, and as with many farming families, there have been unwritten commitments to pass on the family farm to the children, once they retire.

As most growers will be retiring within the next 5 to 10 years, the retirement option is creating a dilemma for older growers. The dilemma is that because incomes have been eroded over the last 16 years due to dieldrin and PCN. Ongoing investments have not been maintained in property improvements, and succession planning has been put on hold. This means that when growers retire, they feel they will not be in a position to leave their families with their farms or supporting incomes.

Sub-divisions:

Most growers spoke about their plans to subdivide off the farm property, a house block for their retirement to build a new home on, and to hand over the rest of the farm to the children so they can continue farming. This also involves the wish to subdivide additional blocks off the farm, to be sold at a later date, for superannuation income purposes.

New Green Wedge planning legislation has now put a stop to these plans, with sub-divisions no longer an option for intending retirees.

Equity Issues:

The Green Wedge dilemma represents a major equity issue for potato growing families. The concern being, why should growers who sub-divided and sold properties before the introduction of the new Green Wedge legislation have an advantage over those who waited and missed out?

The option of special allowances for existing growers to subdivide properties also presents an equity issue for those ex-growers who left farming a few years ago and still retain land in the area □

A vision of the future…

Stakeholders were asked to comment on what they thought Gembrook would look like 10 years from now.

No Potatoes – Just Hobby Farms & Horses:

Both young and old potato growers unanimously felt that the potato industry would not exist as growers retired. This would happen over the next 5 to 10 years.

Some growers spoke about the area going the same way as the Kinglake potato-growing district, being broken up into hobby farms. Others spoke about the area becoming mainly "hobby farms and horses."

Back to Weeds & the Bush:

The ideal farm size for hobby farms with horses is regarded as 2 to 4 hectares. Green Wedge subdivision restrictions on the minimum subdivision size of properties means that future hobby farms in the area will be too big to manage for the average hobby farmer. Growers spoke about examples of this happening already.

Dieldrin regulations on cattle farming would make it difficult for hobby farmers to consider this option (similar to what occurred in Stanley). Growers predicted that restrictions on cattle grazing on big hobby farms would mean that prohibited weeds (ragwort and blackberries) would get out of control, and "the district would go back to weeds and the bush."

New Industries:

Some growers had visions of new horticultural industries being established in the area such as stone fruit, berries, flowers and nurseries, similar to the Silvan area □

Issues involving other future land use options…

Property Sales:

Discussions with the local real estate industry indicated that very few agricultural properties changed hands in the Gembrook area, and that there had been no new investment in agriculture in the area for many years. For this reason, it was difficult to set true market values on agricultural land.

Previously, potential investors in wine grapes had been scared off by dieldrin concerns. However, recent unpublished research undertaken by DPI Victoria in northeast Victoria indicates that dieldrin contamination was not an issue in vines.

Very few properties are sold for hobby farm purposes, once again, because buyers are scared off by dieldrin concerns.

Property Values:

Even though very few properties have changed hands in the Gembrook area, estimated land values by 4 local real estate agents were:

- Agricultural (no home) - 40ha - $7,380 to $9,880/ha.
- Hobby farm (no home) - 16ha - $21,610/ha.
- Residential (no home) – 0.2ha - $100,000 to $150,000/house block

In comparison, agricultural land values in the Silvan area were estimated by local real estate agents to be approximately $24,700 to $37,050/ha. The explanation for higher prices being that the Silvan area does not have the "stigma of dieldrin."

Gembrook – Living With An Image Problem:

According to the real estate industry, Gembrook has an "image problem"…referred to as…"dieldrin phobia." For new agricultural and hobby farm investment to be attracted into the area – perceptions, attitudes and safety issues concerning dieldrin would need to be addressed □

Opportunities….

In the process of this review it was evident that all was not lost for the Gembrook potato industry and the Gembrook community in general. The consultant was able to identify a number of opportunities that are listed below. These opportunities are further explained in Table 8, where the types of outcomes that might be expected to come from these opportunities are described.

PCN:

- The Koo Wee Rup PCN outbreak represents a significant opportunity for Gembrook to address their PCN problem.
- DPI Victoria is keen to assist Gembrook develop management and containment protocols.
- Change the 20km radius quarantine boundary to specific farm clearance arrangements.
- The use of PCN resistant varieties could lead to nematodes dying out (80 to 95% success rate).
- Collaborate with seed companies holding patent rights to new resistant varieties.

Intergenerational Change:

- Now is the time to start the hand over of management to the new generation of growers.
- Intergenerational change can be facilitated through the proposed industry rejuvenation program (see Table 8).
- Support for business improvement programs is available through the AusIndustry Innovation Program.
- A number of other organizations offer training in industry and community leadership.

Industry Development & Management Best Practise:

- The Gembrook industry could take a proactive stance to put the past behind it and look to the future.
- Address industry and community morale and attitude problems associated with dieldrin and PCN.
- Possibilities of appointing technical and community facilitators to work with industry and the community on community attitude issues, and to develop 'best practise programs' for PCN, production, quality, marketing and industry and community leadership (see Table 8).

Alternative Packing & Marketing Arrangements:

- Local growers are not necessarily tied into packing their potatoes through existing local packers.
- PCN regulations appear flexible enough to allow for local potatoes to be packed else where in Victoria.
- The possibility of local growers setting up their own individual or cooperative pack houses.
- Growers can market their own potatoes as long as they address PCN regulations.

Product Development:

- Explore new processing options with a Ballarat potato processing company for peeled Sebago potatoes.
- Peeled potatoes do not appear to be affected by PCN quarantine restrictions - they should be able to be traded interstate.

- Opportunities might exist for larger district growers to grow crisping potatoes.
- Production of high starch, high yielding PCN resistant varieties for the starch and plastics industries.
- There is a remote possibility of attracting investment in a vodka distillery in the area.

Market Development & Promotion:

- Potato marketers are under-achieving and significant market differentiation opportunities exist for keen growers who would like to expand their activities into niche potato markets and products.
- The Gembrook potato image could be re-branded to get rid of the negative image associated with dieldrin and PCN.

Building Relationships with Packers & Supply Chain Companies:

- These companies represent the future face of the potato industry. Development of closer relations with these groups by council, community groups and the Gembrook Rural Review Working Group will be to the long-term advantage of these different stakeholders.
- Growers, local packers and supply chain companies have a lot to offer each other in some form of mutually alliance. Common ground should be explored to achieve improved efficiency and economic outcomes for all parties.

New Investment & Debunking the Dieldrin Myth:

In order to attract new agricultural and 'life-style' investment to the area, it will be important to debunk the dieldrin myth:

- Dispel the negative 'dieldrin myth' image of Gembrook.
- This can be achieved through cooperation with the real estate industry to help new residents feel more comfortable about living safely with dieldrin.
- The real estate industry are interested in participating in a program focusing on 'Living with Dieldrin and PCN.'
- Re-badge and rename the area to promote an improved image of the area.

New industries:

- Attracting new agricultural industries that are less prone to contamination from dieldrin, such as: wine grapes, late stone fruit, nurseries, berry crops, flowers, sheep, carpet wool and equestrian industries.
- Attract other life-style industries to the area such as: rural and environmental tourism, food and wine trails, and bed and breakfasts.

Life-style & Hobby Farms:

Real estate agents predict:

- Growing interest in life-style and hobby properties by people looking for 'Sea Change' life-styles in the hills.
- Gembrook is "Melbourne's Best Kept Secret" because of lower land values and Gembrook's increasing accessible to Melbourne.

The Environment:

- Opportunities may exist for ex-potato growers to reforest their farms while being paid an annual lease and maintenance payment to maintain and look after the restored environment. Program opportunities that need to be explored are: carbon trading, 'Bush Tender' and Land Stewardship' programs sponsored by government and private corporations (DSE, 2003).

Grower Retirement Packages:

- For growers wishing to depart the industry and sell their properties, special retirement package are offered by Centrelink, through the 'Farm Hand' program □

Conclusions…

Regardless of all other issues, Gembrooks' potato growers are aging, with the population having halved since the late 1980's (Gordon, 2003 and Parliament of Australia, 2000). As a result, production has declined, forcing packers to supplement supplies by bringing potatoes in from other areas.

The existing population is expected to commence retiring over the next 5 to 10 years, and the question that has to be asked is, has the Gembrook potato industry reached a point of no return? Has it reached a critical mass or tipping-point where it is no longer sustainable to maintain a potato industry in the area?

From the analysis undertaken, there appears that there are four future scenarios facing Gembrook growers and the community (see Table 3):

1. Potato growers take action to rejuvenate their industry.

2. The industry continues to decline – eventually dying out due to natural attrition. Involving growers

retiring and selling up farms, and packers through lack of product supply, closing up and moving to Melbourne, or new production areas.

3. Packers and supply chain companies act to maintain supply. Involving buying or leasing old farms to grow potatoes for their packing houses, or remain in the area, and source supplies from other areas (Thorpdale and Hillston)

4. Community and council regardless of what happens to traditional growers, acts to maintain and increase sustainable investment and employment in the area. Involving:
a) Assisting growers to retire from their farms with dignity and with some superannuation support
b) Keeping existing packers in the area
c) Attracting other sustainable agricultural industries, life-style and environmental investments to the area.

Dieldrin:

Even though the issue of dieldrin will not go away, and it is acknowledged that dieldrin will have an ongoing influence on farm management and economic returns far into the future - it does appear that industry does have the problem of dieldrin under control.

PCN:

PCN is the industry's major issue at present and this should be the focus of any work that is done. The local industry has been working on the problem for many years, and with the recent Koo Wee Rup outbreak, there is no better time than now, to resolve the problem.

There is an opportunity for the local industry to be proactive on this issue and become a national leader in its management and prevention. By collaborating with Koo Wee Rup growers, there is the possibility to develop a national focus on PCN.

By being proactive and transparent about the pest, the Gembrook industry can move on from denying that it has a problem (in individual farmer cases) to acknowledging it, and doing something about it. They have the option of moving on from being victims of the pest and it's "social disease" status, to becoming national leaders in its prevention and control.

One of the main ways of taking the fight against PCN up to the national industry and have them recognise the extent of the problem, could be by inviting leading overseas scientific experts (UK, Netherlands or New Zealand) to Melbourne, Gembrook and Koo Wee Rup to help with management, control and testing protocols. Such a program could be achieved in collaboration with DPI Victoria, with funding from industry, HAL, DPI, DAFF and AusIndustry.

The use of PCN resistant varieties with similar attributes to Sebago could be contemplated. However, their use would need to be negotiated and agreed to by local packers who are believed to be presently assessing the use of new varieties that are patented under special Plant Breeders' Rights agreements. The use of PCN resistant varieties is known to stimulate cyst development, eventually leading to nematodes dying out (an 80 to 95% success rate). It has taken 16 years for the pest to die out in West Australian outbreak areas, where resistant varieties were used.

Rejuvenating the Industry:

The Gembrook potato industry will face a major generational change crisis over the next 5 to 10 years, as older growers retire. The future of the industry is highly dependent on the smooth hand over of the reins of control of the industry to the next generation of growers. Unless the new generation has a long-term commitment to the future, rejuvenation of the industry will be a lost cause. The industry must have the will and commitment to want to stay and invest in it's future:

It is important that the industry firstly focuses on capacity building to restore confidence in its future and it's ability to cope with, and manage change.

What is needed is to develop and implement a recovery program (see Table 8). This can be achieved by appointing outside help to facilitate change. This could be achieved by the appointment of two facilitators: one to manage industry and community capacity building and leadership development; and a second, to manage technical change including: PCN management, 'best practise', new products, market and industry development.

These facilitators might work with Koo Wee Rup growers, as well. A collaborative program between both communities would more likely be able to attract national funding, than if Gembrook was to go it alone.

The focus of the rejuvenation initiative must be on positive outcomes and not about problems of the past. If the initiative was to go ahead, then it should attempt to form a collaborative partnership with the packers, supply chain companies and processors to achieve mutually agreeable outcomes for all players. In recruiting their participation in the project, it would be important to get their financial support for the project, as well.

Marketing, Processing & Other Options:

Opportunities exist for growers to: consider alternative packing and marketing arrangements; new fresh market strategies; new varieties; or associated processing options. Because the two existing packers are presently locked into the supply of the brushed variety Sebago to supermarkets; growers interested in considering some of these other options might need to consider alternate marketing arrangements.

These marketing arrangements might include: marketing new varieties in their own right, or finding alternative packing and marketing arrangements. Gembrook growers are not necessarily tied into packing their potatoes through existing local packers. It does appear that PCN regulations are flexible enough to allow for local potatoes to be packed else where in Victoria. There is also a possibility for local growers marketing their own potatoes or setting up their own individual or cooperative packing facility. Processing of peeled potatoes might include the establishment of a small processing plant in the area, established once again, as a grower cooperative. It must be also remembered that to go it alone in marketing and packing would mean that growers would have to be well organised, understand the new retail produce acquisition environment, and be prepared to go head-to-head in competition with some of the bigger supply chain companies.

New PCN resistant varieties may offer a two-fold solution to the PCN problem, in the field and in the market. Similar to Europe, consumers in Australia are looking for greater diversity in potato varieties. Potatoes must be convenient, cosmetically appealing, look different, taste good, and must be “fit for purpose” (cook and taste the way the consumer expects). A number of these PCN resistant varieties have these special attributes and can be accessed by Gembrook growers.

In the future, these new varieties could also be used along with Sebago as value-added peeled products for the hospitality and home consumption markets. Peeled potatoes are in increasing demand, as they satisfy changing consumer demand for convenience and versatility.

Opportunities might exist for larger district growers to enter the crisping market, if they were to grow PCN resistant varieties. The only limitation being, that processors are looking to be supplied with a minimum of 60 tonnes of potatoes per day. This however, might be able to be achieved by other cooperative supply arrangements. Such arrangements would involve some tough negotiations with the processor.

The possibilities of establishing a vodka distillery in the area, although remote, might be achieved if the right outside investor could be attracted into the area to establish a tourist based distillery facility, similar to the small boutique whisky industry being established in Tasmania.

Packers & Supply Chain Companies:

Packers and supply chain companies are important and legitimate stakeholders in the potato industry. They may become even more important in the future, as growers leave the industry, and these companies are forced to assume the production role of departing growers.

The Gembrook Rural Review Working Groups’ views on the industry’s future should be shared and discussed with senior management of these companies. Their role in the future of the district should not be underestimated. They must be consulted, to determine what commitments they are intending to make to the sustainable future of the potato industry in the area.

In Scenario 2, where traditional growers retire from the industry, packers and supply chain companies should be encouraged to remain in the district to maintain the existing production, employment, infrastructure and resource base of the industry. These resources should not be allowed to run down or be lost to the area! Because of the strong financial, marketing and technical resource bases of these companies, they might in the future, do a better job of rejuvenating the industry than traditional growers!

Maintaining this groups presence in the district will depend on retaining a skilled labour force, existing water rights, and for the council to be flexibility on consolidation of property boundaries (for greater production efficiencies), should this group want to purchase old potato properties.

New Land Use Options & Dieldrin Phobia:

Whichever industries are attracted to the Gembrook area, whether ‘new agriculture’ or ‘life-style’ hobby farms, the ‘phobia’ associated with dieldrin must be addressed in order to attract the best investments to the area. Unpublished research by the DPI suggests that there are a number of agricultural crops and livestock enterprises that have been identified as being both less susceptible, and more susceptible to dieldrin contaminated soils.

In the case of rural residential properties, average dieldrin soil contamination levels in the area are well within the safe range for residential living.

If investors are to be attracted to the area, they must be made to feel confident that dieldrin is not a major safety issue, and that it can be safely managed and 'lived with.' It is recommended that the Gembrook Rural Review Working Group, the council, community, DPI, DSE and EPA collaborate with the local real estate industry to develop promotional literature that gives directions to new residents and investors on 'Living With Dieldrin.'

Because the area is considered to be a prime investment proposition for hobby farms. Horses are an obvious choice when it comes to livestock and hobby farms. Horses are less susceptible to dieldrin. The development of a sustainable horse or equestrian industry in the area should be a serious consideration for economic development. A study in the Shire of Yarra Ranges (Swinburne University of Technology, 2002) determined that the gross value of production of all sectors of the equestrian industry in that area was $32 million, compared to the more fashionable wine grape industry that was valued at $21 million (farm gate value of wine grapes) in 2000.

The real estate industry described Gembrook as the "lost cousin" of the Dandenong Ranges, because of its previous image of poor roads and its distance from the city. However, now they feel that because of the areas natural beauty and rural charm and improved roads, that it is "Melbourne's Best Kept Secret." The main reasons for this emerging potential are: lower land values and Gembrook's increasing accessible to Melbourne, with the recent construction of the Hallam, and the proposed Pakenham bypasses. The new freeway system means that soon "there will not be a red light between Melbourne and Pakenham."

Hobby Farm Investments:

One of the problems with the Green Wedge regulations is that existing agricultural property sizes are too large for the average hobby farm. According to real estate agents, the preferred size of hobby farms for running horses is 2 to 4 hectares. The maximum size that growers and the real estate industry think hobby farmers can comfortably manage is 12 hectares.

Recent experience by potato growers is that neighbours with larger hobby farms are quickly becoming over-run with weeds (blackberries and ragwort). Growers expressed the belief that after they retired and sold up, that the area was likely to "return to weeds and the bush" - with hobby farmers not being in a position to manage the weed problem.

This situation could represent a major management and legal problem for state and local governments. It is important that the Rural Review Working Group considers practical sub-divisional strategies for commercial agricultural properties being sold as hobby farms.

Environmental Investment:

Properly planned environmental investment should be considered as a vital mix in 'new investments' in the area.

Reforestation, peri-urban forests and biodiversity investment have the potential for restoring and enhancing the natural beauty of the area. The state government is presently assessing two new environmental land reuse programs that might be of importance for potato growers leaving the industry, but still looking to remain on their farms, and deriving some income from their properties. 'Carbon credit trading' investment is a similar options that is presently being pursued in NSW.

The concept of ex-potato growers replanting trees on their properties generated some apprehension and concern about increased bush fire risk, as well as stirring feelings of guilt about planting trees on properties that their fore-fathers had spent much of their lives clearing to develop their farms. Regardless of growers initial concerns, reforestation could prove to be a viable retirement option.

Government Support of Growers Leaving the Land:

Although growers want the government to directly intervene in their situation, this is not likely to happen. Government has already put into place safety net provisions to support farmers wishing to leave the land through the 'Farm Help' program'. Other assistance is also provided for those who wish to stay in the industry and improve their business competitiveness. Special funds are available for industries prepared to introduce improve business practises through the 'Better Business Practises' program of AusIndustry.

Leaving the Land - Retirement & Superannuation Options:

Growers and the Rural Review Working Group considered the scenario of growers retiring from their farms, as the least desirable scenario for the area.

This would involve growers' retiring from growing, the possible sale of water rights, and the eventual sale of land.

As part of their retirement plans, growers spoke about their plans to subdivide from the farm, a house block for their retirement to build a new home on, and hand-over of the rest of the farm to the children, so they could continue farming. This also involves the wish to subdivide additional blocks from the farm, to be sold at a later date, for superannuation income purposes.

Broad scale sub-division of old potato farms for eventual sale by growers for superannuation retirement purposes will not be possible under new Green Wedge zoning regulations.

Traditionally, most farmers try to hand on the farm to their children. One of the main concerns of growers contemplating retirement was: what happens to their families who have been working with them on their farms? If they only get enough money from the sale of their properties to cover capital gains taxes (where applicable), the cost of a new home and some money for superannuation investments – there would be little money or land left to hand on to their children who have been employed on the farm.

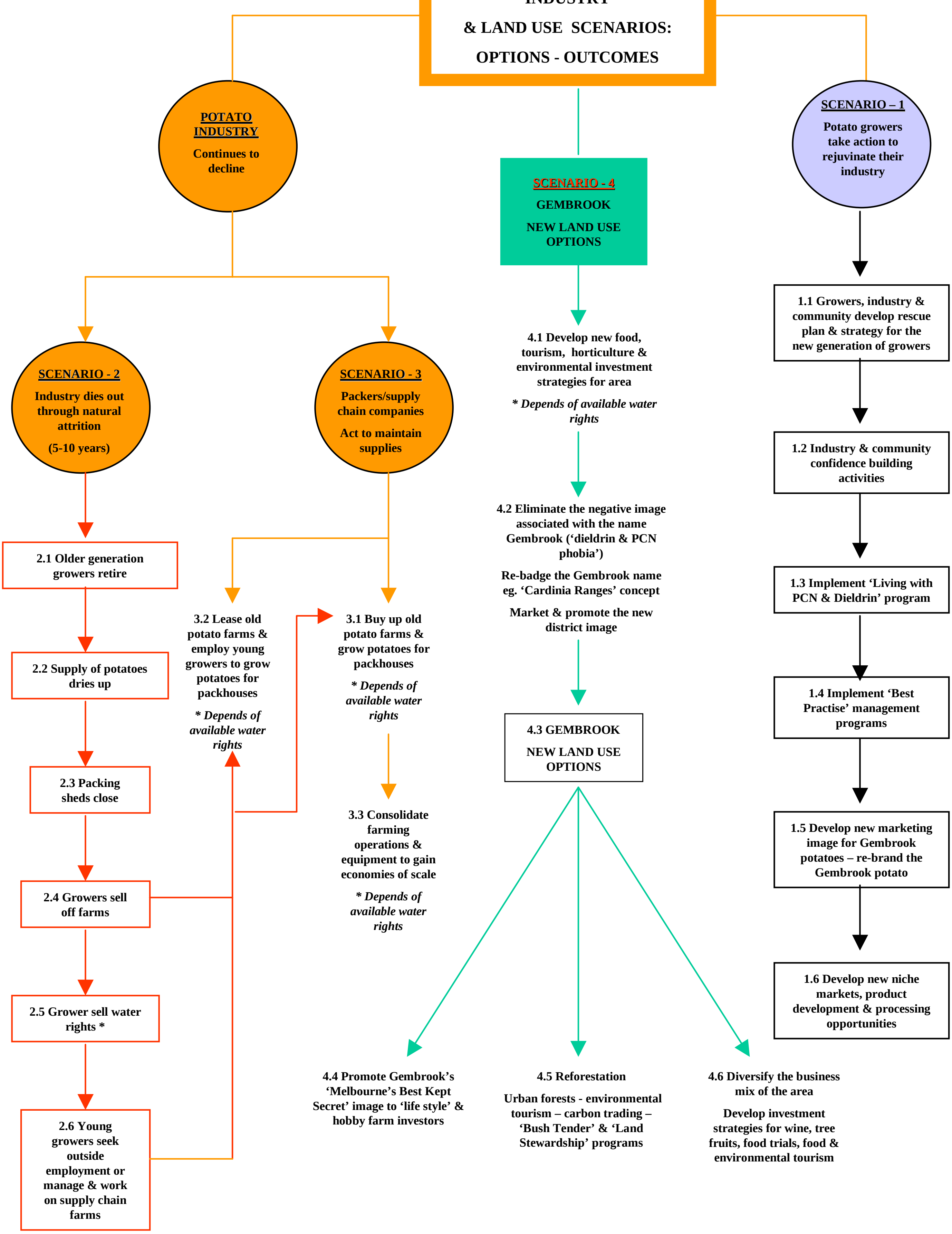
However, based on how many hectares most growers own, and present land values. Most aging growers who own their properties, should be in a position to provide for their own retirement by selling their properties to cover the purchase of a new home and use the balance of the sale money to be comfortably invested in superannuation.

For those farmers wishing to retire from the land without sufficient capital to cover their retirement. The Federal government has a scheme in place called the 'Farm Help' program that is administered by Centrelink and is set up to provide financial assistance to leave the land. The scheme provides up to $5,500 for training to re-enter the workforce (not applicable to retiring farmers) and up to $45,000 in re-establishment grants. To assist younger family members who have worked on the family farm, and who have made direct investments in the farm, they can have assess to both the training and re-establishment grants. All grants are subject to individual assessment by Centrelink.

The sale of water rights options by retiring growers is also a least desirable outcome for the district. The permanent sale of water on the national water trading market will yield between $1,000 to $1,500/ML, while annual trading or sale of temporary water rights can yield $100 to $300/ML per year. The feeling by Melbourne Water is that - "once water was lost downstream, it is lost to the district forever." This option could have the most serious outcomes for Gembrook, by restricting the districts ability to attract new agricultural industries that have a need for irrigation water.

Hobby framers appear to be an exception to the problems of getting new water rights and licences for the construction of dams. It appears that they do not need to obtain a water right or licenses to construct new water storage facilities for stock and domestic purposes ■

Figure 3: Future Scenarios for Gembrook



(Table 8) Gembrook Potato Industry & Land Use Scenarios: Outcomes - Actions – Collaborators…

SCENARIOS	OUTCOMES	ACTIONS	COLLABORATORS & SUPPORT BASE
1.	**REJUVENATE THE GEMBROOK POTATO INDUSTRY…**		
1 1	❑ Develop & implement a rescue plan & strategy to assist the next generation of growers ❑ Restore confidence to individual growers their families industry & the community that there is a future for the area & that there are a number of ways of securing the long term future of the area for potato growing other business enterprises & land use options	❑ Seek funding support for the project ❑ Appoint two facilitators (community development & technical) for three years to assist the industry to: a) come to terms with its past & to move on in a positive way & b) develop technical & marketing outcomes that address the problems of PCN dieldrin & product & marketing opportunities ❑ Work in collaboration with Koo Wee Rup processing growers	❑ Gembrook growers packers community & council ❑ Koo Wee Rup processing growers crisping & processing companies ❑ Horticulture Australia Ltd ❑ AusIndustry – Innovation Access Program ❑ DPI & DSE ❑ DAFF ❑ Gembrook community
1 2	❑ Build confidence & self awareness in the potential of the area & the capabilities & strengths of the industry & community to expand & grow ❑ Develop individual & community strategies that focus on positive outcomes	❑ For the community facilitator to develop ongoing programs & activities to achieve these outcomes	❑ Facilitators ❑ Community support agencies ❑ Centrelink – Farm Help Program ❑ Gembrook community
1 3	❑ Develop a proactive self help program for managing PCN & dieldrin – *Living With PCN & Dieldrin* ❑ Empower young growers to develop leadership skills & confidence in their own decision-making ❑ To meet & learn from other growers ❑ To travel see & experience other ways of management & marketing ❑ Learn to collaborate & share with neighbours	❑ Through the appointment of a technical facilitators – develop proactive district wide protocols for managing both problems ❑ Invite visiting scientific PCN specialists from Holland UK or NZ to work with growers to develop successful management & containment strategies ❑ Debunk the national myths surrounding PCN ❑ To achieve a national focus & recognition of PCN & its management ❑ Establish a 'Young Growers Groups' at Gembrook & Koo Wee Rup	❑ Facilitators ❑ DPI & DSE ❑ DAFF ❑ APIC ❑ Victorian Potato Industry Council (VFF) ❑ AUSVEG ❑ Packers ❑ Processors ❑ EPA
1 4	❑ Develop improved management practises	❑ Implement 'Best Practise' management & quality assurance programs	❑ Facilitators ❑ DPI & DSE ❑ Packers ❑ Processors
1 5	❑ Change the negative image of Gembrook potatoes	❑ Re-brand Gembrook potatoes under another name eg 'Mountain Fresh' 'Cardinia Ranges' 'Cardinia Fresh' 'Cardinia Gold' etc	❑ Facilitators ❑ Packers ❑ DPI ❑ DIIRD
1 6	❑ Diversifying into new products & market niches	❑ Develop new markets for peeled Sebago potatoes with Green Lands Holdings Ballarat ❑ Explore the option of growing crisping potatoes in Gembrook for Smith's Snack Foods ❑ Visit fresh markets & evaluate new niche products markets & food supply companies	❑ Facilitators ❑ Green Lands Holdings ❑ Smiths Snack Foods ❑ DPI
2.	**INDUSTRY DIES OUT THROUGH NATURAL ATTRITION…**		
2 1	❑ Growers sell off farms	❑ Cash in assets for superannuation & retirement purposes ❑ Take advantage of special farm retirement options	❑ Centrelink – Farm Help Program
2 2	❑ Growers sell water rights *	❑ Cash in assets for superannuation & retirement purposes	❑ DSE
2 3	❑ Young growers seek outside employment or manage or work on old family farms as employees	❑ Take advantage of special farm retirement or training & employment options	❑ Centrelink – Farm Help Program

3.	**MAINTAIN PRODUCT SUPPLY & INVESTMENT IN GEMBROOK POTATO INDUSTRY…**		
3 1	❑ Encourage the purchase of old potato farms in Gembrook by supply chain companies	❑ Encourage continued investment in the Gembrook production industry by packers & supply chain companies ❑ Achieve ongoing supply of high quality Gembrook brushed potatoes for the Melbourne market ❑ Provide ongoing employment for young growers in the industry	❑ CSC Economic development unit ❑ DIIRD Food Victoria group ❑ DPI – Agribusiness Initiative
3 2	❑ Encourage leasing of old potato farms in Gembrook by supply chain companies	❑ Encourage continued investment in the Gembrook production industry by packers & supply chain companies ❑ Achieve ongoing supply of high quality Gembrook brushed potatoes for the Melbourne market ❑ Provide ongoing employment for young growers in the industry	❑ CSC Economic Development Unit ❑ DIIRD Food Victoria Group ❑ DPI – Agribusiness Initiative
3 3	❑ Consolidate farming operations & equipment to gain economies of scale	❑ Expedite investor arrangements to consolidate larger holdings	❑ CSC Economic Development & Planning Units ❑ DIIRD Food Victoria Group
4.	**GEMBROOK - NEW LAND USE OPTIONS…**		
4 1	❑ Capture new economic development & employment options for area	❑ Develop new food tourism horticultural & environmental investment strategy for the area	❑ Gembrook community ❑ CSC ❑ Tourism Victoria ❑ DSE
4 2	❑ Develop a positive business & public relations image for area	❑ Eliminate the negative image associated with the name Gembrook (dieldrin & PCN) ❑ Minimise the use of the Gembrook name – re-badge the name eg Cardinia Ranges etc ❑ Market & promote the new district image	❑ Gembrook community ❑ CSC ❑ Tourism Victoria ❑ DSE ❑ Local tourist industry ❑ Real estate industry
4 3	❑ Encourage new investment & new blood into the area by life-style & hobby farm investors	❑ Promote Gembrook's " Melbourne's Best Kept Secret" image ❑ Develop brochures that smooth the entry of new residents to Gembrook with – 'Living with Dieldrin & PCN' manuals & protocols ❑ Develop brochures for new residence that address issues of the 'Right to Farm' & 'A Good Neighbour' programs	❑ Gembrook community ❑ CSC ❑ Real estate industry ❑ DSE & DPI
4 4	❑ Re-greening the environment & increasing biodiversity – 'Bring Back the Bush'	❑ Encouraging urban forests – reforestation through carbon trading 'Bush Tender' & 'Land Stewardship' programs	❑ Gembrook community ❑ DSE ❑ Greening Australia
4 5	❑ Diversifying the business mix of the area	❑ Develop investment strategies for wine tree crops food trails environmental tourism & horse industries	❑ Gembrook community ❑ DPI & DSE ❑ VFF ❑ Industry associations ❑ Real estate industry

Grower & Stakeholder Contact List…

SURNAME	1st NAME	COMPANY	CATEGORY
Ballantyne	Karen	EPA - Southern Metropolitan Operations	State Government
Beardsell	David	DPI - Plant Standards	Plant Standards
Brown	Derrick	Gerard Collins Real Estate	Real estate
Cascone	John	Gembrook Township Committee - Vice President	Potato grower
Cerchiaro	Robert	Red Gem Growers and Packers	Potato packers
Cox	Leonora	Cardinia Shire Council – Councillor	Local government
De Boer	Dolf	DPI, PIRVIC	Plant research
De Jong	Rene	Elders Ltd	Seed potatoes
Failla	Gae	VFF Gembrook – Secretary	Potato grower
Firritto	Joe		Potato grower
Firritto	Neil		Potato grower
Garretto	Vince		Potato grower
Geraldine	Justin	AusIndustry	Business project funding
Granieri	John		Potato grower
Greenwood	Joanne	Dept of Sustainability and Environment	Land Stewardship Program
Holz	Richard	Costas & Co P/L	Potato packers
Hosking	Steve	Melbourne Water	Water supply and drainage
Jardine	Rebecca	ABS - Victorian Office	Statistics
Kentish	Malcolm	Kentish & Sons Pty Ltd	Potato industry
Kermode	Mike	Rural Finance Corporation of Victoria	Finance & training
Makin	Trevor	DPI, PIRVIC	Animal health
McIntyre	Jan	National Potato Conference, Mount Gambier, SA, 2002	Tourism
Meaklim	Jean	EPA - Land & Groundwater Unit	State Government
Morgans	Ian	Catchment Management Authority	Catchment management
Morthy	Kan	Smiths Snack Food Co.	Potato processing
Nicosia	Oris		Potato grower
Pantorno	Joe		Potato grower
Pickersgill	Barrie	City of Casey - Casey & Cardinia Agricultural Audit	Local government
Pitt	Tony	Victorian Potato Growers Council	Potato industry
Richards	Steve	Bell Real Estate	Real estate
Ross	Alan	DPI – CAS	State Government
Ryan	Michael	Red Gem Growers and Packers	Potato packers
Sheehan	Frank	Green Lands Holdings Proprietary Ltd	Potato processing
Sully	Russell	DPI, PIRVIC	Plant research
Turner	Bruce	Phoenix Facilitation	Facilitation
Ure	Bruce	VFF Potato Council - Chairperson	Potato grower
Vegt	Martin	Dept of Sustainability and Environment	State Government
Vella	Adam	Moraitis Fresh Packing (Vic)	Potato packers
Volta	Joe		Potato grower
Volta	Tom		Potato grower
Walters	Leigh	Australian Potato Industry	Potato industry
Walton	Philip	Cardinia Shire Council, Rural Review Project Manager	Local government
Watson	Peter	Frank Facey - 1st National	Real estate
Wynne	Des	Cardinia Shire Council - Man. Economic Development	Local government
Zabeli	Jason	Elder Real Estate	Real estate
	Sharron	Barry Plant Real Estate	Real estate
		Australian Competition & Consumer Commission	Competition & fair trade
		CentreLink	Employment & training

References…

ABS (1999). *Apparent Consumption of Foodstuffs in Australia*. Website: www abs.gov au/ausstats/abs@nsf.

ABS (2001). *State Statistical Profiles: Victoria agricultural state profile agricultural production crops potatoes.* Website: www abs.gov au/ausstats/abs@nsf.

ACCC (2004). *Australian Competition and Consumer Commission*. Website: www accc.gov au.

Aitken K (1996). *Selected Physical & Financial Information for Victoria Growers – 1994/95*. DNRE. September.

Barr N (2001). *Relating to Natural Resource Management (Part 1).* Australians & Natural Resource Management 2002 – Australian Farmers.

Brown P (2001). *Vegetable Processing Capabilities: A review of the vegetable processing industry in relation to current and projected supply chain capacity in Victoria.* A report prepared for the Cardinia Shire Council.

Brownlee M et al (2002). *Putting Steam Back Into the Potato Market: From commodity to product*. A market research report prepared for Horticulture Australia Ltd, Project No. PT01050, October 7.

Cadman R (1997). *Emerging Trends in the International Potato Sector*. DNRE, ExpHort 2000 Publication, No. 19. August.

Cadman R (1998). *Globalisation of the Victorian Potato Industry: A summary of the challenges and market opportunities.* ExpHORT 2000 Publication No. 37. DNRE, June.

Cardinia Shire Council (2003). *Gembrook Rural Review: Community workshop.* Workshop notes. December 9th

Centre for International Economics (1997). *Priorities for DNRE horticultural strategic planning.* A report for the DNRE. June.

Department of Human Services (2002). *Arsenic and Health: Are you living in an area with mine tailings?* Public information pamphlet.

DNRE (1996). *A Fresh Approach: Potatoes for quality and profit.* A report prepared by DNRE, July.

DSE (2004). *Bush Tender Trial.* Website: www.nre.vic.gov au.

DSE (2003). *Land Stewardship: Duty of Care – An Instrument for Increasing the Effectiveness of Catchment Management*. A community discussion paper.

DSE (2003). *Land Stewardship: Ecosystem Services Through Land Stewardship Practices – Issues & options*. A community discussion paper.

DSE (2003). *Land Stewardship: Environmental Management Systems – The role of EMS in the emerging Land Stewardship concept*. A community discussion paper.

DSE (2003). *Land Stewardship: Landholder Perspectives on Sustainable Land Management*. A community discussion paper.

DSE (2003). *Land Stewardship: Private Investor Needs for Land Stewardship Investment*. A community discussion paper.

DSE (2003). *Land Stewardship: Environmental Management Systems – The role of EMS in the emerging Land Stewardship concept*. A community discussion paper.

DSE (2003). *Land Stewardship: Market-like Policy Options*. A community discussion paper.

Dunlop P (2004). *Disease Hits Potatoes*. Pakenham Gazette. January 14th, pp. 1.

Freeman K (1996). *Potato By-product Industries in Australia: A report on an economic evaluation of opportunities for potato by-product industries in Australia.* Compiled by Meyers Strategy Group and Agriculture Victoria.

Garrard N (2004). *Being Competitive in the Food Business*. A speaker's paper for the ABARE 2004 National Conference, Canberra. March 2.

Gordon J (2003). *We Slid Off the Sheep's Back, Now Sliding Off the Land, Too.* The Age, July 16th.

Gordon J (2004). *Farm Cash Plan Woos Rural Voters*. The Age, March 19.

HAL (2004). *Australian Horticulture Overview*. Website: www.horticulture.com au.

HAL (2002). *National Potato Business & Marketing Conference 2002*. Conference proceedings, Mount Gambier, August 21-23.

HAL (2004). *Australian Horticulture Overview*. Website: www.horticulture.com au.

HAL (2004). *Industry Snapshot*. Website: www.horticulture.com au.

HAL (2004). *Potato Statistics.* Website: www horticulture.com au.

Lewis I (1994). *Fresh Potato Marketing Research.* A Report prepared for HRDC.

Morey D (1998). *Australian Potato and Vegetable Trade: Lessons for all of us.* A report to a potato industry forum. Institute for Horticultural Development, August.

Morey D & Sully R (1999). *A Summary Report: Cost competitive models for potato production in Victoria.* DNRE, May.

McKenzie D (2004). *Pricing Skake-up Demand*. Weekly Times. March 10.

McKinna a et al (2001). *Potato Export Market Development: Australian Export Potato Opportunities – Bonanza or myth.* Final report for DNRE and HAL, April.

Meridith R (2003). *Options for Change: New ideas for Australian farmers.* RIRDC Publications.

Parliament of Australia (2000). *Retirement Assistance for Farmers Scheme Extension Bill 2000.* Website: www aph.gov au/library/pubs/db/2000.

Pickersgill B (2004). *Casey & Cardinia Regional Agricultural Audit & Action Framework.* Report prepared by the City of Casey and Cardinia Shire Council. February.

Pickersgill B (2003). *Focus on Farming: Regional agribusiness workshop*. Report prepared by the City of Casey and Cardinia Shire Council. October 15.

Potato Australia (1998). Fresh Potatoes: National consumer research. A report commissioned by HRDC. Volume 9, pp. 24-25, September.

Rabobank Australia (1999). *The Fresh Potato Value Chain in Australia.* Sydney, March 5.

Sellars P (2004). *Second Home Farm Ban*. Weekly Times March 10.

Sully R (1998). *Australian Potato Industry: Whither the future*. ExpHORT 2000 Publication No. 9. DNRE, January.

Sully R (1996). *CQ Potato: Realising the potential of the Victorian potato industry.* DNRE, December.

Swinburne University of Technology (2002). *Farming Real Estate? Challenges and opportunities for Agribusiness on the Urban Fringe – Yarra Valley Region.* A report prepared for the Centre for Agriculture & Business Yarra Valley and Shire of Yarra Ranges.

Weekly Times (2004). *Potato Levy Canned*. January 7th, pp. 56.

Weekly Times (2004). *Potato Pest Found*. January 7th, pp. 2.