The Tasmanian Grains Industry

Potential and Constraints in Development

A Report to the
Grains Research Development Corporation

by

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Preface

The purpose of this study was to examine the potential opportunities for the economic development of Tasmanian grains, grain legumes and oilseeds in the hope that this might provide some indication of the future prospects for a significant expansion of the grain and oilseeds industry in Tasmania.

In Section Two, the study has described the Tasmanian grains industry as it currently exists and has collated information on production, demand, trade and infrastructure. It has compared the Tasmanian Industry with Australia as a whole, with the object of putting the local industry in perspective.

The method of assessing the potential of various crops, and the industry as a whole is developed in Section Three. The approach has been to develop a framework of component factors against which the prospects for success could then be judged; against a background of the general economic and political environment which will affect any new development. Porter's diamond of forces required for sustainable development was used to make this general assessment. The forces are factor advantages, demand conditions, related and supporting industries (infrastructure) and competitive firms and rivalry.

Section Four examined the issues use of this framework raises for the industry. Despite some outstanding local research into plant varieties it was clear that Tasmanian grains face some major difficulties if they are to make a significant contribution to Australian grain production or to the value of agricultural production in Tasmania. Section Four emphasises that grain production will not develop unless the farming program and crop sequence it fits into is more proftable than alternative farming activities. The Section emphasises once more the handicap Tasmanian producers face in having to contend with a small local market and the disadvantages of Bass Strait.

Critical constraints that go right through the entire study relate to the lack of a grains culture in Tasmania, inadequate infrastructure and uncertainty about government policy parameters; the future of the Wheat Freight Scheme and more particularly the future and future role of the Tasmanian Grain Elevators Board.

Section Five is devoted to the future prospects for Franklin Barley and Section Six deals with all other crops and potential new developments. The fact that so much attention has been devoted to the prospects for Franklin barley do not necessarily mean that its long term prospects should be viewed as brighter than other crops, but rather that it presents a current opportunity and at the same time confronts Tasmanian farmers with the broad range of issues that will need to be overcome before any substantial grains industry can develop.

It is against this background of concern about the general economic and political constraints currently facing Tasmanian grain growers that the comments about the prospects for individual crops are discussed in Section Six, because these constraints create a level of uncertainty that does little to develop growers' confidence.

Overall Conclusion

There are a number of positive indications that particular grains and legumes may be able to fit usefully into farmers' production plans and to make a contribution to the overall profitability of the enterprise. Current experience indicates that bulk grain exports present both an opportunity and a challenge and that limited future bulk grain exports cannot necessarily be ruled out.

Nevertheless the likelihood of establishing a substantial grains industry in Tasmania is problematical when viewed against alternative opportunities, limited local demand and particularly the lack of a grains culture, infrastructure weaknesses and uncertainty about future government policy.

A fundamental priority for Tasmanian farmers is to find ways of reducing uncertainty about government policy, including the future of the TGEB and the Wheat Freight Scheme, before making a major commitment to the industry. Without resolving such issues it will be difficult to create a market culture and environment in which opportunities arising from innovative research and development can be tested.

Acknowledgements

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Summary of Conclusions

The purpose of this research was to examine the potential opportunities for the economic development of Tasmanian grains, oil seeds and grain legumes, to identify the barriers that prevent this potential being achieved and the actions that might be taken to remove these barriers.

The Current Situation

Despite the initial importance of grain production in the 19th Century, grain production has made a small contribution to the value of agricultural production in Tasmania and Tasmania has been a heavy net importer of grains, particularly wheat, for many years.

In contrast the State's economy has rested heavily on other primary products: its wool, dairying, fruit and vegetables and livestock industries and in turn on the downstream value-adding 'manufacturing' industries that use these inputs.

Although the focus of this report is on the potential for developing grains, it is important to appreciate that the current balance of agricultural activities has not come about by accident, nor by deliberate planning. Rather, it is the consequence of Tasmanian farmers making practical decisions about which rural activities offer them the best returns. There is always, therefore, fundamental competition for a scarce productive resource such as agricultural land. No matter how strong the desire to promote a particular farming activity, such aspirations will fail unless farmers judge that the new activity offers better prospects than in some alternative use to which the land might be put.

It is possible to demonstrate that Tasmania has a suitable climate and soils to grow considerably more grain than is currently the case, but this in itself does not point to the emergence of a significant sustainable industry.

Whilst a comparison of gross margins for grains and other competitive farming activities is not conclusive, current comparisons within realistic price ranges do not suggest the emergence of a large grains industry either in the North West (vegetables and dairying) or even in the North (mixed farming and grazing). There is, then, a temptation to dismiss the potential for grains because the opportunities for developing a large industry appear at variance with the basic agronomic facts of life.

Even though the emergence of a large grains industry is unlikely, the possibility of the emergence of a useful industry cannot be discounted particularly when opportunities for crop sequencing, cash cropping and alternatives on dryland to the ailing wool industry are taken into account.

Following Porter this study has assessed the potential for grains and legumes within a framework that searches for the existence of basic and complex factor advantages, demand (particularly initially at the local level), a suitable infrastructure that involves the existence of supporting industries and finally competition that stimulates and encourages producers to efficiency, innovation and best practice.

Factor Advantages

Much of the recent interest in grains has been generated as a consequence of the outstanding research performance of Tasmanian researchers. In particular, the development of Franklin Barley, has provided a world standard variety especially suited to Tasmanian conditions. Research within the Department of Primary Industry and Fisheries and the University of Tasmania has produced interesting work in the development of other grains and legumes.

Successful plant breeding research will not in itself provide an overwhelming factor advantage for a State grains industry, though with proper management it should, at the very least, prove to be a profitable activity, though arguably it will only it will only survive in the presence of a local industry which draws from it. Hence local farmers can also expect to benefit from successful local plant breeding activities through participation in extended trials and the spread of knowledge.

Where plant breeding offers major opportunities for Tasmanian farmers is when varieties are superior to existing varieties so that they confer a significant economic advantage to those who grow them and, that they are uniquely suited to Tasmanian conditions. Alternatively recognition and implementation lags in adoption and commercialisation elsewhere, provide Tasmanian producers with a short run advantage. However, for an industry to be sustained on the basis of short run advantages the plant breeders would need to deliver a succession of superior varieties at regular intervals to maintain the technological superiority. Even if these conditions are met, the emergence of an industry cannot be guaranteed unless returns compare favourably with those to be earned from other farming activities.

Market Opportunities

A consequence of successful plant breeding is that it results in continual re-examination of market opportunities. Commonly an industry is able to develop because there are opportunities for import replacement so that the existence of local demand provides an initial market. As the local industry develops it may then be able win export markets either for unprocessed product, or through the activities of value added downstream processing industries.

Tasmania is a net importer of grains (particularly wheat) for use initially by its milling industry, for livestock directly and for downstream industries using flour, feed and by products. It thus offers the potential for some import replacement, though there is agreement that a local grains industry will not able to produce all the wheat to replace imports. However, the hopes for a significant Tasmanian grains industry rest on locally grown grains other than wheat replacing imports.

Such market opportunities may be driven by events in the downstream industries themselves. For example, there may be increased opportunities for additional barley sales to Cascade Brewery if Vic Bitter is brewed in Hobart as planned.

Paradoxically, the recent stimulus to the Tasmanian grains industry has come directly as result of exports in 1993 of 8,000 tonnes of bulk Franklin barley to the Japanese brewer Kirin, via Western Australia. The stimulus builds directly on the superiority of Franklin in the Australian context and the poor performance of other Australian barley varieties within a world context. We have estimated that the advantage that Franklin currently confers in beer production could be in the order of $36 per tonne to the brewer. Despite high freight costs it is understood that a 3 year contract for some 20,000 tonnes of Franklin barley (in excess of

50 per cent of current production) is being negotiated between Kirin and the Tasmanian Grains Elevator Board. It is considered this contract will be of particular value in determining the directional strategies and long term prospects of the industry.

Bulk export sales to a single large buyer, which represent a tiny part of that buyer's total purchases, are unlikely to form a permanent foundation for a significant Tasmanian industry. The conditions are almost opposite to those specified as necessary for a 'niche' market where producers meet a specific need that cannot be satisfied elsewhere and where they can reasonably expect to sustain that position over time.

Explanations for the success of the Tasmanian industry in being able to win, and hold, the Kirin order have ranged from its alleged capacity to improve the overall quality of the Western Australian supply, Kirin's desire to encourage alternative sources of supply, and the suggestion that the use of Tasmanian barley will demonstrate to other barley producing areas the necessity to improve the quality of the delivered product. Significantly, the Tasmanian contract for 1993 contains substantial penalties for failure to achieve quality specifications.

Although it is generally agreed that a malting barley industry is unlikely to be sustained by sales to a single large buyer, there is a disparity of views about future marketing directions. To some, the best opportunities lie with the development of the bulk export trade, whilst others believe more opportunities are to be found in the development of local value adding industries.

Those who favour the development of bulk exports argue that, if measured in terms of expressions of interest and inquiries, the current demand for Tasmanian Franklin Barley is well beyond the capacity of the Tasmanian industry to supply at farm gate prices of $180 per tonne. A particular problem, and one that will be encountered in meeting the Kirin contract in 1994 and subsequently, is that international orders for malt barley tend to be for large shipments, whereas the Tasmanian industry is better placed to supply small shipments of around 5,000 tonnes for which it is more difficult to attract interest. The problem is not whether sufficient demand exists for bulk exports, but whether Tasmanian producers are able to profitably produce, ship and deliver the quantities provided at going, and predicted prices.

Those who believe the future of Tasmanian barley lies in the development of local value adding industries argue that value adding industries are likely to take quantities that are within the capacity of the local industry to produce and which offer such value adding industries another advantage for operating in Tasmania. If such industries are to develop and to provide worthwhile demand for local barley, then the existence and activities of local maltings are critical elements. A number of local market opportunities have been identified in this Report, but some of these (such as whisky) would be only very small users of malting barley whilst for major users (the breweries) the effects that structural changes will have on demand for malting barley are uncertain. A major challenge, for those who believe the future lies in value adding industries is firstly to identify those industries and then to appraise the significant difficulties they face.

It is considered that a major benefit to be derived from the Kirin contract is that it has the potential to provide barley growers with a considerable challenge; one which is likely to test the capacity of the industry to the fullest, both in terms of its ability to supply the quantities required and to meet international specifications. In doing so it will also provide Tasmanian

farmers with the chance to assess a range of long term market opportunities and to reach decisions about how barley growing might fit in with their other farming activities.

Opportunities for import replacement may be said to exist more generally for a variety of grains and grain legumes. Import replacement for cereals other than wheat used by the milling industry and in fishmeal production are examples of potential demand existing if Tasmanian farmers are able to produce competitively. The other critical constraint on such import replacement is what has been described here as the immaturity of the Tasmanian grains industry.

Longer term potential demand may exist for fish meal based largely on grains rather than an 80:20 mix of wild fish and imported cereals as at present. Such a formulation has the potential not only to meet the forecast expanding needs of the Tasmanian salmon and trout industry (estimated to be in excess of 10,000 tonnes by the year 2000), but also to offer an unmeasured export potential. It is clear that considerable research will be required before the technical problems of producing an acceptable fishmeal can be overcome. The potential remains one for the long term and thus lies in the domain of the research scientist rather than the agricultural economist or the farmer, at the present time. The likelihood that, in time, Jack Mackerel may not be able to provide for the needs of the local salmonid industry offer hopes that the research agenda will be determined for this area as a priority.

Infrastructure

The third element in the framework that has been used in this Report to assess the prospects of Tasmanian grains is the current structure of the industry and in particular the infrastructure and the market culture itself. In both of these areas, the Tasmanian grains industry is at a serious disadvantage compared both with other grain producing countries and states of Australia and also in comparison with other competing farming activities within Tasmania.

Infrastructure problems that either limit or threaten the export of bulk grains from Tasmania have been identified as including the lack of proper bulk loading facilities, the need for improved, or expanded drying facilities for barley, cleaning equipment to maintain quality control of exports and optimise returns, provision of long term bulk storage facilities to which might be added, further waterfront reforms to reduce loading costs.

Such infrastructure problems are not easily, or cheaply solved and are a major reason why the industry may come under pressure when meeting contract quantities and specifications in 1994 and beyond. The 1993 experience was that the infrastructure was barely able to cope and would have failed, but for the resourcefulness and drive of producers and the TGEB.

A long term improvement in the infrastructure to support an expansion in the bulk export of grains will only be achieved if there is investment of additional capital. It is considered that one of the minimum needs for an expanded export of bulk grains trade is for access to silo storage at Launceston, which may in turn be dependent on the expansion of silo storage at Devonport if the Review of the Wheat Freight Scheme provides for either the adoption of a one or two port discharge system, or the abandonment of the Wheat Freight Scheme completely.

The outcome of the Review of the Tasmanian Freight Scheme will have an influence on more than just the infrastructure of the industry. A significant reduction in the level of support will adversely affect the milling industry and the downstream industries that use its products and by products. If this occurs it will also affect the future opportunities for import replacement of imported grains. The recent A$2 million boost to the scheme will at least help offset higher shipping costs associated with higher fuel excise taxes for the next four years.

That infrastructure needs exist, and become harder to ignore, as the tonnage exported increases, tends to reinforce the view that both the term and the size of the Kirin contract present the industry with a challenge and an opportunity to face up to the practical issues of developing a new industry.

Attempts to develop value adding industries also face infrastructure problems. The need for, and cost of, an oil crusher has been identified as the principal constraint on the development of oilseed production in the State. There is only one operational malting in the State at the present time with an annual capacity of 12,000 tonnes of barley. Whilst the plant currently has surplus capacity, expansion plans for Cascade's production may reduce this. In any event, it constitutes a ceiling for local malting barley. The possibility of re-opening and upgrading Joe Whites malting at Quoiba has been raised, but it is understood that some $5 million may be required to recommission and upgrade the plant. There must be considerable doubt about the existence of local demand for the output of the plant at the current time. The evidence suggests that its output would not find a ready interstate or international market given current world prices for malted barley and malt extract.

Unfortunately, there is no simple solution to infrastructure problems either for export based, or for some of the local value adding industries. The provision of infrastructure required for industry to be competitive tends to be costly and to require throughput volumes which are only successfully generated if demand is large.

Such developments must be judged to have a high risk element if they require investment before the demand has been proved and this caution must be issued in the case of Tasmanian grains. Developments must also be considered risky when considered in the context of recent Tasmanian experiences in which ventures in industries with seemingly attractive prospects such as poppies, salmonids and essential oils have failed or come close to failure in the development stage. Whilst management errors or other factors may be the reason for an industry experiencing difficulties, it is a shortage of capital which is usually the reason it is unable to survive its mistakes.

It follows that developments that require relatively little capital are better placed to survive the learning period than those requiring substantial investment. In the case of the malting barley industry one of the challenges is how to develop the infrastructure for exports that combines efficiency and quality control with a need to avoid large capital investment.

The Market Culture

A second factor that has been identified as a critical constraint is what is here described as an immature market culture. This is judged to threaten, not only the development of large scale market developments, but also the smaller import replacement opportunities which do not

depend on large scale infrastructure developments and which should be accessed by Tasmanian farmers as a matter of course.

Indications of an immature market culture are provided by suggestions that Tasmanian processors are unable to buy grains from local producers because of unreliability, unwillingness to honour contracts, lack of quality control and expectations of receiving more than import parity price.

A problem appears to be that there is no specialist grains merchant in the State and hence it is quite difficult for potential sellers and buyers to give and receive signals and for an efficient market to operate.

The Tasmanian Grain Elevator Board (TGEB) has partially filled this gap in the market recently in addition to its activities in organising bulk exports of barley and its more traditional role in receiving, storing and delivering bulk wheat. Many people believe the TGEB has done an effective job with very limited resources in assisting with the development of a grains market, and particularly in making possible the buying and selling small quantities of grains to other than the major processors. Few would dispute the pressure this has placed on the management of TGEB.

Future Role of the TGEB

The question that has been raised about whether it is appropriate that the TGEB should continue to operate as a grains merchant raises the larger question about whether there is any need for TGEB to continue as a State instrumentality. It is understood that a consultancy commissioned by DPIF and currently being undertaken has the future of the TGEB amongst its Terms of Reference.

One view is that the TGEB's wheat importing and storage and its grain merchant and grain exporting functions complement one another and that, particularly in the early stages of industry development, they need to be provided by a single organisation. It can be argued that this organisation should also be responsible for the cleaning and drying of export grain thus avoiding fragmentation of the industry.

Another view is that the TGEB could also operate more profitably if its activities were increased and it acted as a general bulk storage authority rather than simply as a grain handling organisation.

Sale of State assets such as the wheat silos and storage operated by the TGEB fits in with the Tasmanian Government's general policy of selling assets, where appropriate, and using the funds to retire State Debt. Sale of the organisation has raised the fear that a new owner might not operate it in the best interests of the industry or Tasmanians.

One possibility explored in the Report is for the privatisation of the TGEB subject to conditions negotiated by the State. One approach would be for the Government to approve the corporatisation of the TGEB and for a private company with a specified allocation of shares that balanced interests within the industry and the public interest. Such a company could be allowed to operate with such a balanced share holding for a specified period.

This type of arrangement would allow an integrated approach to the development of the market without allowing any particular group to dominate the market and without leading to misuse of market power that might involve breaches of the Trade Practices Act. It is envisaged that any such set of arrangements would see the purchase of the organisation's assets under terms to be negotiated.

Overall Conclusion

A review of the research findings into particular crops has raised and continues to raise interesting possibilities for the grains industry in Tasmania. Such developments need to be seen in perspective, not in terms of the capacity to produce, but in terms of their relative profitability compared with, or in the context of, existing farming activities.

There are a number of positive indications that particular products will be able to fit usefully into farmers' plans and to make a contribution to the overall profitability of the enterprise.

A summary of the principal crops and industries where potential exists, together with the constraints that need to be overcome is contained in the accompanying Table.

However, the likelihood of establishing a large scale grains industry in Tasmania becomes even more problematical when viewed against critical constraints such as the limited local demand, the identified lack of infrastructure, the immature market climate and uncertainty about the future and the functions of the TGEB and the direction of Federal and State Government policies.

A fundamental need is to find ways of overcoming these constraints, without major investment and resolving uncertainty about policy. By doing so an environment can be created in which it may be possible to realise the promising prospects that innovative research and development offer for particular products.

Identified Market Opportunities and Constraints on Tasmanian Grains

Crop	Use	Type of Development	Present Local Quantity Used	Potential Increase in tonnage	Critical Constraints*	Comments
Malting Barley	Bulk Grain Export to Kirin and Others	Unprocessed export	9,000	50,000	1. infrastructure 2. profitability (opportunity cost)	opportunities to supply Kirin for 3 years present a considerable challenge, but also an opportunity to develop
Malting Barley	Cascade Brewery Pty Ltd Tasmanian Breweries Ltd	Value adding import replacement, export potential	6,000	2,000	1. technical (VB) 2. structure of downstream industry 3. single op. malting in Tas.	VB produced in Hobart with local barley. Boags may expand mainland sales, or be sold to others
Malting Barley	Miscellaneous e.g. Whisky	Value adding, export potential	small	small	1. single operational malting in Tasmania	Offer little additional demand for malting barley, though interesting value adding industries
Grains and Legumes	HMA, Gibsons Animal Feed Industries	Import replacement	uncertain	10,000	immature market culture profitability	
	Gibsons Fishmeal, Salmonid Industry	Import replacement	nil	1,000 to 2,000 t by year 2000	immature market culture profitability	
Grains and Legumes	Fishmeal, Salmonid Industry	Value adding export potential	nil	4,000 to 8,000 t by year 2000	research technology	fundamental research problems to be overcome so remains only a long term prospect
Oilseeds	Vegetable oils	Value adding export potential	nil		infrastructure profitability	not possible without a crusher
Grains and Legumes	Stockfeed and On farm uses	On farm uses	uncertain		infrastructure profitability	economics of providing on farm storage and opportunity cost of production

SECTION A - GENERAL ISSUES

Section One - Aims and Objectives

1.1 Aim

To examine the potential opportunities for the economic development of Tasmanian cereals, oil seeds and legumes, to identify barriers to development and to assess the actions needed to overcome these barriers.

1.2 Objectives

More specifically, the work has as its objectives,

* to identify those crops which are relevant to the research

* to assemble data that set out past and current levels of production, the uses to which those crops have been put and the quantities that have been exported from Tasmania,

* to develop an analytical framework suitable for,

    (i) assessing the export potential of the crops in both an unprocessed and processed forms,

    (ii) assessing the import replacement potential of the crops both in directly replacing imports of grains and other crops and through local processing, replacing the importation of processed products that use grains as inputs,

* to assemble agronomic information on potential for production in Tasmania of the crops which will require identification of,

    (i) preferred and non preferred varieties

    (ii) production potential of each crop in particular regions of Tasmania

    (iii) opportunities for crop sequencing,

* to assemble information relating to production costs to farm gate, so as to identify potential gross margins of particular crops under demand conditions to be determined,

* to assess the potential demand for Tasmanian cereal crops in an unprocessed form for export, and for use within Tasmania either as import replacements of unprocessed grains or as an input to new processing activities,

* to identify the technical, economic and industrial barriers to the export of unprocessed grains including drying facilities, storage, loading arrangements and freight costs,

* to identify the technical, economic and industrial barriers to the greater use of Tasmanian grains within Tasmania including the barriers to the establishment of new industries or the use of Tasmanian grains by existing industries

and in the light of these investigations,

* to evaluate which activities have the greatest potential for significant development in export development, import replacement or in adding more balance to Tasmanian agriculture at the farm or State levels,

* to determine the critical limiting factors to such development, and

* to recommend measures to overcome these limiting factors.

Section Two - Description of the Tasmanian Industry

2.1 Current Production

Introduction

This section presents descriptive material on grains, grain legumes, and oilseeds grown in Tasmania and Australia, and provides the foundation for analysing potential future development. The section draws heavily on preliminary material provided by the Department of Primary Industry and Fisheries.

Grains include an array of cereal plants such as wheat, barley, oats, triticale, sorghum, maize, and rice. Grain legumes include plants belonging to the pea family, characterised by true pods enclosing seeds such as lupins, different varieties of peas, and different varieties of beans. Finally, oilseeds are plants (such as linseed, canola, safflowerseed, sunflowerseed, soybeans, peanuts, and cottonseed) whose seeds yield oil. Tasmania, with its temperate climate, is only able to grow a subset of the crops listed above. In some respects its climate and soil types afford superior growing conditions for certain crops relative to the other Australian states.

History

Grains have held an important place in human culture even before the beginning of civilisation. Indeed, cultivation of wheat, barley, and millet probably began by 15000 or 10000 B.C. around the Mediterranean with the spread of Neolithic culture (Wells 1921). By the time Western Civilisation took hold around 5000 B.C., cultivation of grains was likely an inextricable part of agriculture.

It is not surprising, that grain, having been such an integral part of the agricultural fabric of Civilisation through the millennia, would be brought by early European settlers to Tasmania in 1804. Indeed, by 1812 Tasmania had expanded grain production sufficiently to export wheat to the mainland (Tilt 1971). Wheat production expanded to the point that by 1842 around 32560 hectares were planted in the State. Tasmania was the leading colony in total wheat-growing area, representing 48% of the total in Australia for that year (Tilt 1971). By 1864-65 the 30000 hectares sown produced 34667 tonnes (Woodforde 1958?).

Continual cash cropping, leading to reduced soil fertility and growing weed problems, along with declining prices caused by competition from Mainland states, led to reductions in plantings early this century. Although expertise from the Department of Agriculture led to improved farming practices in the 1930s, prices have never recovered enough to induce farmers to increase plantings to former levels for long periods of time (Tilt 1965). Indeed, Government incentives to increase the production in an effort to curb the steadily growing level of imports have not reversed this decline.

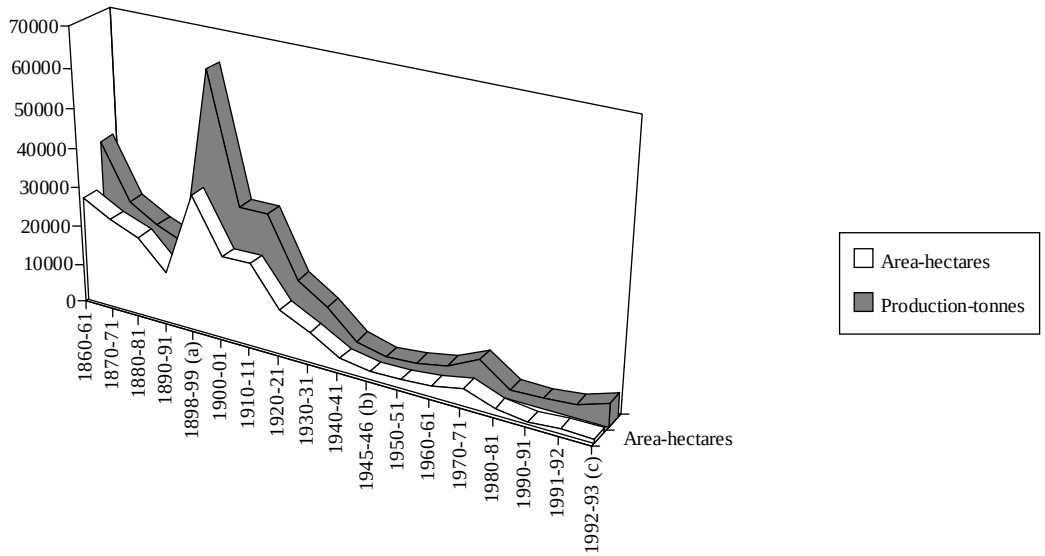
The decline is shown clearly in Table 2.1.1 as well as Figure 2.1.1 below.

Table 2.1.1. Wheat for Grain--Area and Total Production, Selected Years

Year	Area (hectares)	Production (tonnes)	Year	Area (hectares)	Production (tonnes)
1860-61	26891	38538	1940-41	3253	3810
1870-71	23222	24413	1945-46 (b)	2016	1823
1880-81	20243	20412	1950-51	2152	2586
1890-91	13133	17500	1960-61	2797	4028
1898-99 (a)	34514	62706	1970-71	4479	7691
1900-01	20973	30210	1980-81	1563	2500
1910-11	21142	30509	1990-91	599	2448
1920-21	11446	15404	1991-92	1167	3249
1930-31	7732	10641	1992-93 (c)	1210	5700

(a) Peak production year
(b) Record low production year
(c) Provisional figures
Source: ABS: Tasmanian Yearbook 1975, p. 210; ABS 7112.6; 7114.6; 7111.6.

Figure 2.1.1: Wheat for Grain: Area and Total Production, Selected Years



Source: Table 2.1.1.

A similar picture exists for the case of oats. The production of oats reached a peak around 1910, with around 21850 hectares grown for grain production and 27500 hectares for hay. With the decline in the horse population, there was a decline in the demand for oats for horse feed (Tilt 1965).

Some limited information is available on area under crop in Tasmania from 1818 to 1841.

Table 2.1.2: Area under Crop: Van Diemen's Land, 1818-1841
(area in hectares)

Year	Wheat	Barley	Oats	Peas	Beans	Pota-toes	Tur-nips	English Grasses	Tares	Total Crops
1818	2043	87	n.a.	60		108	n.a.	n.a.	n.a.	---
1828	8238	1564	637	261	14	523	524	2011	n.a.	13773
1838	16900	5461	8732	351	52	1429	3664	6940	177	43706
1841	25792	3646	6666	299	41	1694	6452	8936	141	53667

Source: ABS, Tasmanian Yearbook, 1975.

Today, the Tasmanian grain industry continues the tradition of cereal production, followed by grain legumes and oilseeds. Cereals have been grown in Tasmania since the early days of settlement, and held an important place in its agriculture for over a century (Tilt 1971).

> Cereals are not grown as a major enterprise in any region of Tasmania. They are used in rotation with higher value crops, or as part of a pasture renovation phase. (*Tasmanian Primary Industry Profile, Cereals. DPI* 1993)

Apart from the cereal production, the bulk of other grain crops falls into the category of "grain legumes". These consist mainly of lupins which have been grown in the State for many years as fodder and green manure crops.[1]

Current Production -- Comparison with the rest of Australia
The following subsection provides further information about Tasmanian production and how Tasmanian grain production contributes to Australian production.

Table 2.1.3 below presents Tasmanian agricultural production as a percentage of total Australian production for selected agricultural products.

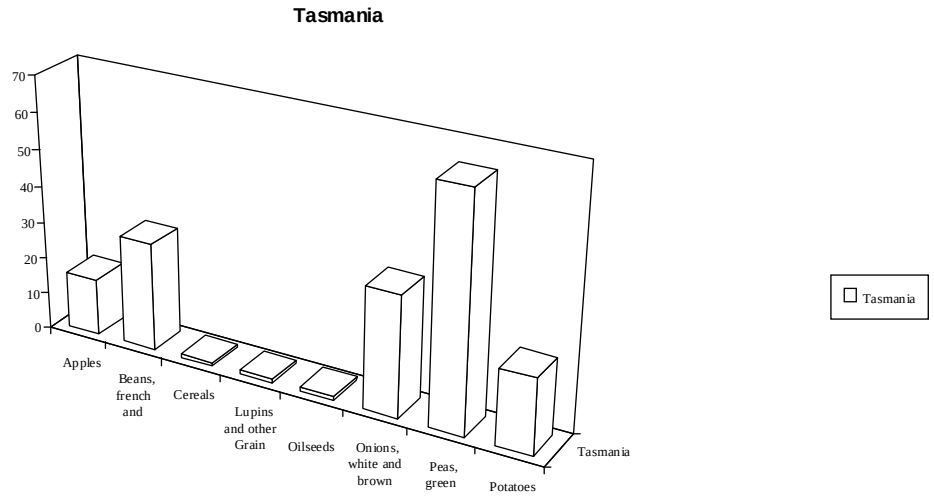
[1] Grain legumes for human consumption are, at this stage, only being trialed by Department of Primary Industry and Fisheries.

Table 2.1.3. Tasmanian Agriculture--Percentage of Australian Production

	1989/90	1990/91
Production of:	**(%)**	**(%)**
Apples	17.9	15.6
Beans, french and runner	31.9	29.7
Cereals	**less than 1.0**	**less than 1.0**
Lupins and other Grain Legumes	**less than1.0**	**less than 1.0**
Oilseeds	**less than 1.0**	**less than 1.0**
Onions, white and brown	34.1	33.0
Peas, green	60.4	64.0
Potatoes	25.3	20.7
Number of:		
Cattle and calves	2.5	2.5
Sheep and lambs	3.1	2.9
Area of agricultural establishments	0.4	0.4

Source: ABS 7114.6; private communication from ABS; DPIF&E Tasmanian Rural and Fishing Industries in Brief, 30 June 1992.

Figure 2.1.2. Tasmanian Agriculture--Percentage of Australian Production

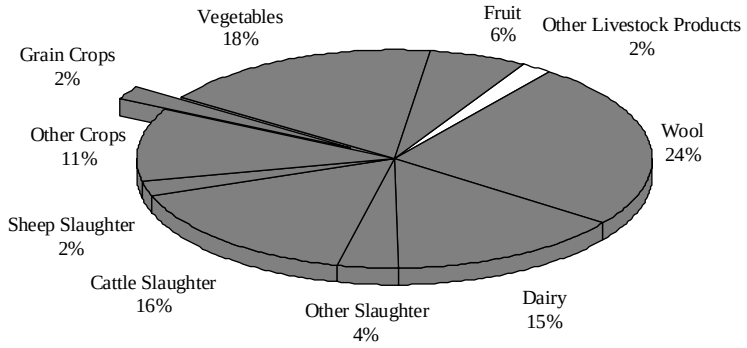


Source: Table 2.1.3.

Tasmanian grain, lupin, and oilseed production relative to other states makes a tiny contribution to Australian production of these crops. For none of them does it amount to more than 1 per cent. This is in sharp contrast to mainstream vegetable crops such as green peas and beans, onions and potatoes for which Tasmania is the dominant producer, with up to 64 per cent of the market (in the case of green peas).

Within Tasmania grain production accounts for only two per cent of the gross value of agricultural production as shown in Figure 2.1.3 below.

Figure 2.1.3.
Gross Value of Agricultural Production in Tasmania
1990-91 Preliminary Estimates
Total A$592 Million



Source: DPIF&E Tasmanian Rural and Fishing Industries in Brief, 30 June 1992.

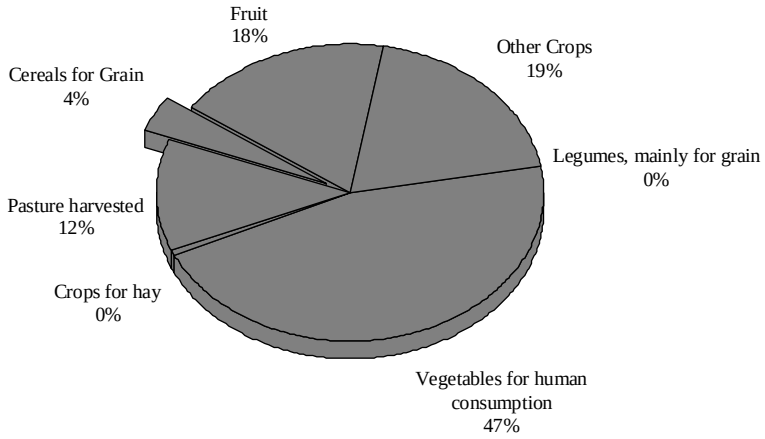
Even as a percentage of Gross Value of Crops, cereal for grains, and oilseeds account for a modest proportion as shown in the table and figure below.

Table 2.1.4. Gross Value of Agricultural Crops in Tasmania
For the years 1989-90 to 1991-92
($ million)

Crop	1989-90	1990-91	1991-92
Cereals for Grain	7.3	8.6	8.9
Legumes, mainly for grain	0.5	0.7	0.6
Crops for hay	0.5	0.6	0.9
Pasture harvested	26.4	27.7	28.1
Fruit	34.8	27.2	40.8
Vegetables for human consumption	120	100.6	104.2
Other Crops	32.5	43.8	43.9

Source: ABS 7503.6.

Figure 2.1.4
Gross Value of Agricultural Crops in Tasmania
1990-91 Preliminary Estimates
Total A$227.4 Million



Source: Table 2.1.4.

No more than 5 per cent is accounted for by cereals for grain and legumes. Cereals for grain by itself accounts for about 4 per cent of the total gross value.

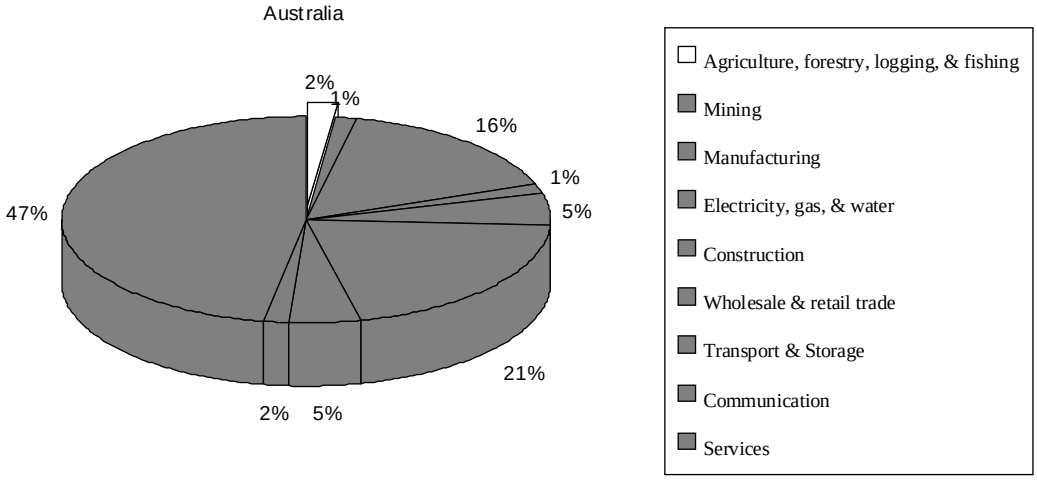
The following table shows a comparison between the Australian and Tasmanian Agricultural labour force. It can be seen that the Tasmanian Agricultural labour force is only 4 per cent of the Australian total.

Table 2.1.5. Labour Force Estimates August 1993

Industry Division	**Tasmania**	**Australia**
Agriculture, forestry, logging, & fishing	7682	140365
Agriculture	4501	115215
Poultry	152	8623
Fruit	328	16381
Vegetables	859	12797
Cereal grains, sheep cattle & pigs	2377	60334
Other agriculture	784	17082
Services to agriculture	208	11105
Forestry, logging, & fishing (Summary figure)	4388	20128
Mining	2070	83401
Manufacturing	21301	1022639
Electricity, gas, & water	2982	95813
Construction	4890	316567
Wholesale & retail trade	28206	1323424
Transport & Storage	6298	296036
Communication	3196	113387
Services	76460	3013149

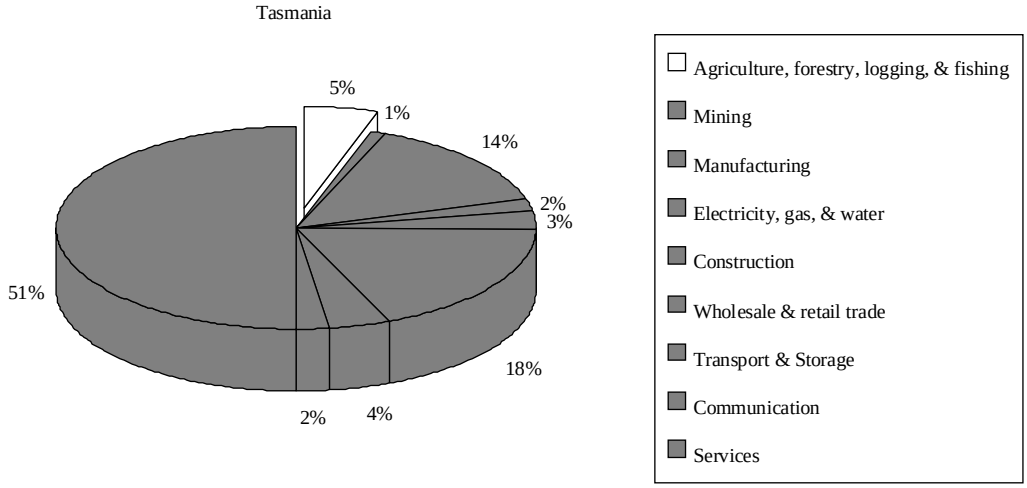
Source: ABS: Labour Force Estimates - February 1993.

Figure 2.1.5. Labour Force Estimates Australia, August 1993



Source: Table 2.1.5.

Figure 2.1.6. Labour Force Estimates Tasmania, August 1993



Source: Table 2.1.5

The services sector is the principal employer in Australia as a whole and in Tasmania. Agriculture contributes only around 2 per cent of employment in Australia and 5 per cent in Tasmania. It would be a mistake, however, to conclude that this is a reflection of the true importance of agriculture to the economy and more than the value of production to farm gate is a sensible measure. In both cases it fails to take account of the vertical relationships underlying these arbitrary classifications.

Table 2.1.6 presents five-year area, production, and crop yields for Tasmania, compared with Australian states.

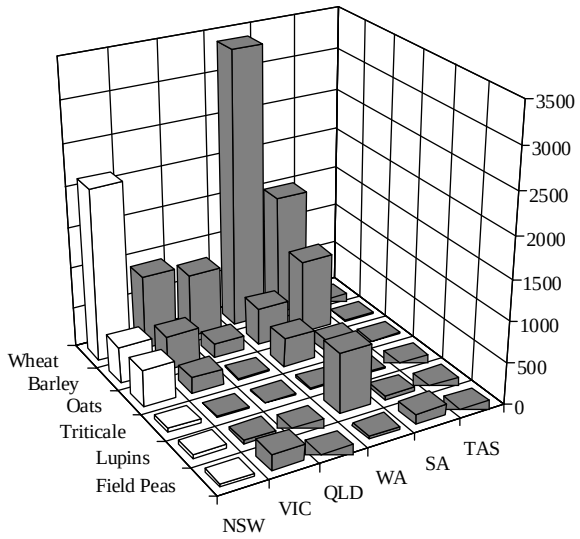
Table 2.1.6. Selected State Grain and Legume Area and Production -- Five-year average to 1991-92

Crop	NSW		VIC		QLD		WA		SA		TAS	
	Area '000 h	Prdn skt	Area '000 h	Prdn skt	Area '000 h	Prdn skt	Area '000 h	Prdn skt	Area '000 h	Prdn skt	Area '000 h	Prdn skt
Wheat	2117	3598	905	1655	778	1214	3392	4819	1481	1991	1	3
Barley	452	738	421	664	175	282	463	689	915	1484	9	24
Oats	454	623	194	312	19	16	359	552	146	168	9	17
Triticale	49	101	18	30	11	21	20	18	11	13	1	3
Lupins	54	66	36	37	.	.	745	727	43	40	1	1
Field Peas	37	41	195	212	.	.	37	26	125	156	<1	1

Source: Australian Bureau of Agricultural and Resource Economics: Crop Report Project 31.005, No. 77, Tables 1 and 3.

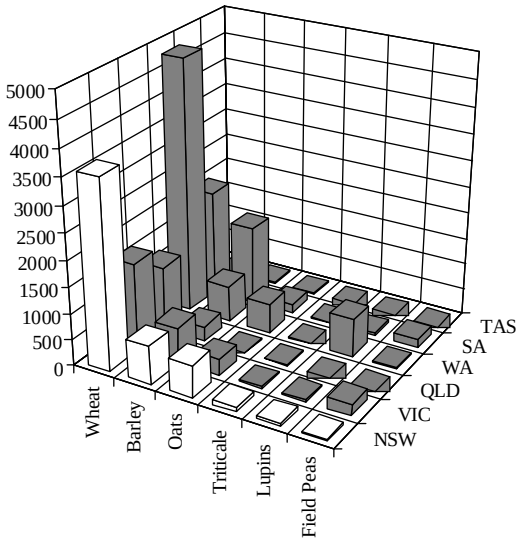
The small size of Tasmanian crop area is shown in Figure 2.1.7.

Figure 2.1.7. Selected State Grain and Legume Area ('000 h) -- Five-year average to 1991-92



Source: Table 2.1.6.

Figure 2.1.8. Selected State Grain and Legume Production (kt)
-- Five-year average to 1991-92



Source: Table 2.1.6.

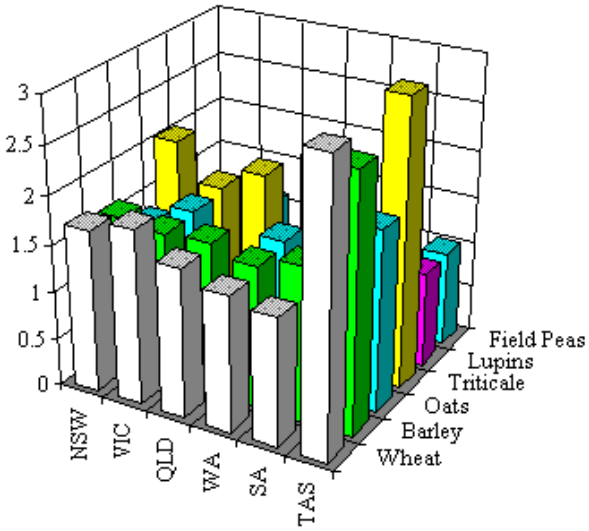
Tasmanian area and production are a small fraction of area and production in the other states. Western Australia leads in both area and production of wheat whilst South Australia leads in the figures for barley. However yields are comparable across states.

Table 2.1.7. Selected State Grain and Legume Yield --
Five-year average to 1991-92 (tonnes/hectare)

	NSW	VIC	QLD	WA	SA	TAS
Wheat	1.70	1.83	1.56	1.42	1.34	3.00
Barley	1.63	1.58	1.61	1.49	1.62	2.67
Oats	1.37	1.61	0.84	1.54	1.15	1.89
Triticale	2.06	1.67	1.91	0.90	1.18	3.00
Lupins	1.22	1.03	.	0.98	0.93	1.00
Field Peas	1.11	1.09	.	0.70	1.25	1.00

Source: Derived from Table 2.1.6.

Figure 2.1.9. Selected State Grain and Legume Yield -- Five-year average to 1991-92 (tonnes/hectare)



Source: Table 2.1.7.

Although figures are crude (the small numbers for Tasmania make the error due to rounding rather large), they do give an idea of the higher yield Tasmania has had for most grains and lupins over the five-year period ending 1991/92 relative to Australian states.

Tasmanian figures in detail

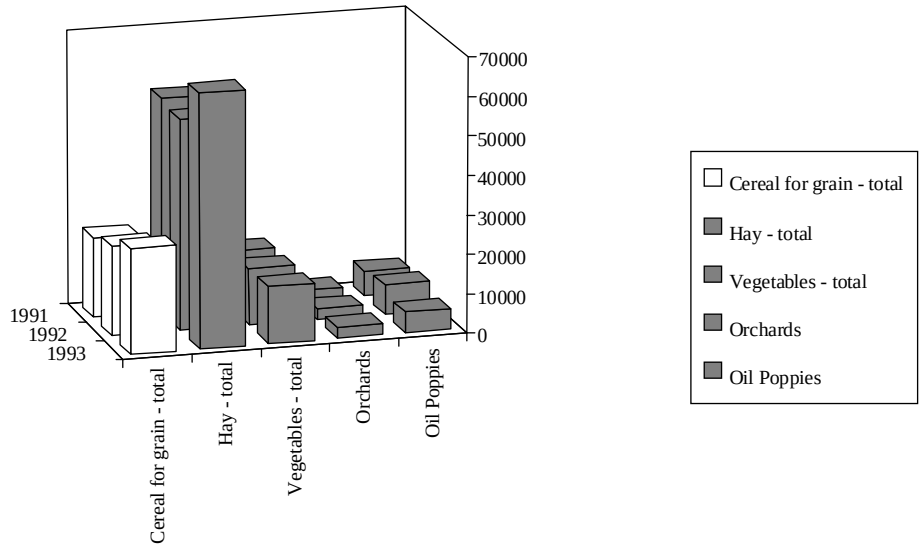
Information about the area and quantities of specific crops for the years 1991 to 1993 are presented as Table 2.1.8.

Table 2.1.8. Area and Production of Principal Crops year ended 31 March 1991 to 1993

Description	1991 (h)	1991 (t)	1992(h)	1992(t)	1993(h)	1993(t) P
Barley	9766	25979	11340	31790	15630	40540
Oats	9257	18825	9150	18580	9490	19570
Triticale	760	2894	1020	3390	400	1410
Wheat	599	2448	1170	3250	1210	5700
Cereal for grain - total	**20382**	**50146**	**22680**	**57010**	**26730**	**67220**
Cereal	1365	5904	2220	8880	2560	13390
Lucerne	1561	6793	1750	8220	1730	10280
Other pasture	51667	239827	49690	212730	60400	328080
Hay - total	**54593**	**252524**	**53660**	**229830**	**64690**	**351750**
Beans, french & runner(a)	1191	8836	1250	9240	1090	9780
Carrots	329	15088	400	17990	260	11250
Onions	1422	73418	1510	78270	1080	52730
Peas, green(a)	5628	26638	5340	27830	6140	29650
Potatoes	5727	235465	5970	249770	6000	n.y.a
Vegetables - total	**14297**	**359445**	**14470**	**383100**	**14570**	**n.y.a**
Orchards	2752	46480	2770	51456	2840	n.a.
Oil Poppies	6509	n.a.	7580	n.a.	5420	n.a.

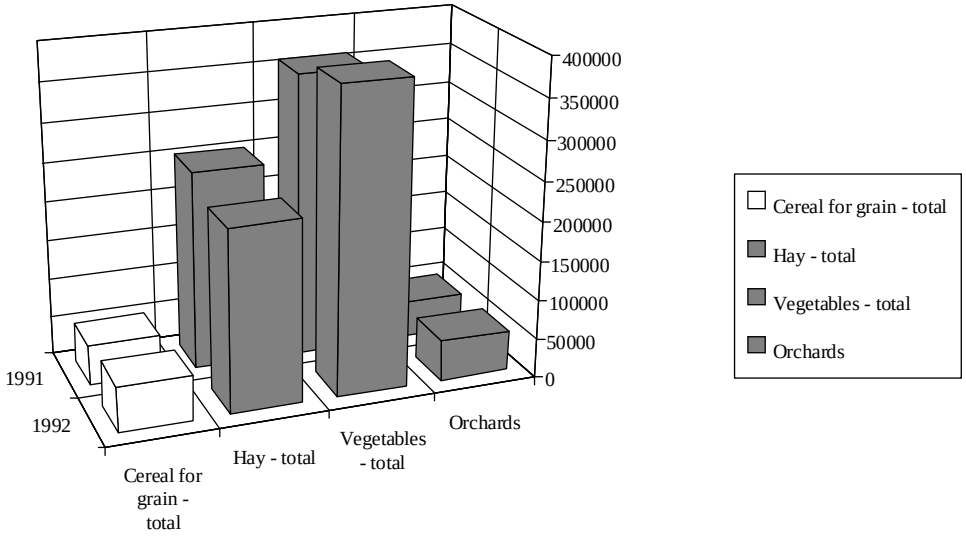
(a) Processing
Source: No. 7111.6 & 7114.6.

Figure 2.1.10. Area of Principal Crop Totals Year ended 31 March 1991 to 1993



Source: Table 2.1.8.

Figure 2.1.11. Production of Principal Crops Totals Year ended 31 March 1991 to 1993



Source: Table 2.1.8.

The figures above indicate the large amount of cereals grown for hay. Oats are mostly used for this purpose but other cereals are used to a certain extent. Cereals grown for grain is separated, showing itself to be a small portion, both of area and production. In fact pasture area dominates crop area whilst vegetables dominate crop production. Overall, relative areas and productions have remained stable over the past three years. Total area for cereals for grains and hay appears to have increased slightly in 1993 whilst total area for orchards and oil poppies has fallen. Area for vegetables has remained flat. Production increased slightly for vegetables but fell perceptibly for hay.

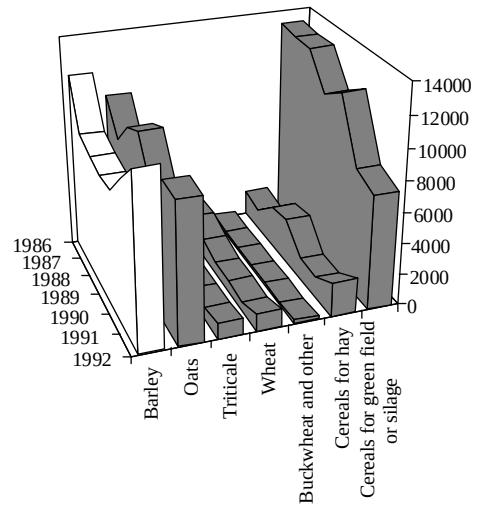
A better historical perspective is gained for cereals in the following table.

Table 2.1.9. Area, Production & Yield of cereals, TAS 1986-1992
Year Ended 31 March

	1986	1987	1988	1989	1990	1991	1992
Area(Hectares)							
Barley	11449	8487	8024	7820	7983	9766	11344
Oats	9798	7765	9560	10233	7568	9257	9146
Triticale	971	1225	1056	776	742	760	1020
Wheat	1704	1729	1179	771	792	599	1167
Buckwheat and other	305	152	232	127	176	80	239
Total cereals for grain	24227	19358	20051	19727	17261	20462	22916
Cereals for hay	1627	1356	2628	2908	1367	1365	2217
Cereals for green field or silage	13155	13058	13056	10943	11895	8092	7439
Total cereals for hay and fodder	14782	14414	15684	13851	13262	9457	9656
Total Cereals for all Purposes	39009	33772	35735	33578	30523	29919	32572
Production(Tonnes)							
Barley	26316	20681	21549	22022	19320	25979	31793
Buckwheat	n.a.	n.a.	n.a.	n.a.	202	60	137
Oats	15800	11215	15552	17925	12824	18825	18576
Triticale	2438	3397	3374	2730	2549	2894	3387
Wheat	3840	4739	3815	2199	2687	2448	3249
Total cereals for grain	--	--	--	--	37582	50206	57142
Cereals for hay	6588	5282	8980	12267	5180	5904	8881
Yield(Tonnes per Hectare)							
Cereal for grain							
Barley	2.2	2.4	2.7	2.8	2.4	2.7	2.8
Buckwheat	n.a.	n.a.	n.a.	n.a.	1.2	0.8	0.8
Oats	1.6	1.4	1.6	1.8	1.7	2	2
Triticale	2.5	2.8	3.2	3.5	3.4	3.8	3.3
Wheat	2.2	2.7	3.2	2.9	3.4	4.1	2.8

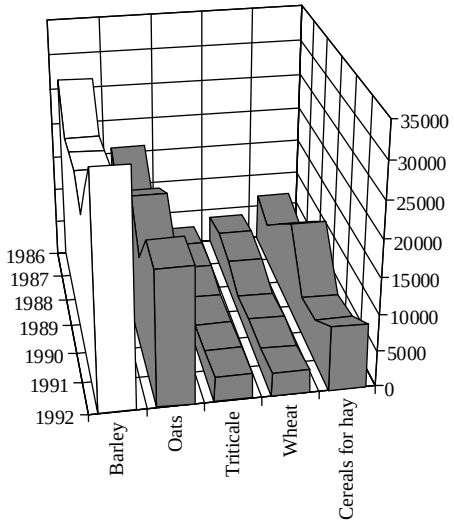
Source: ABS 7114.6

Figure 2.1.12. Area of cereals, TAS 1986-1992
Year Ended 31 March



Source: Table 2.1.9.

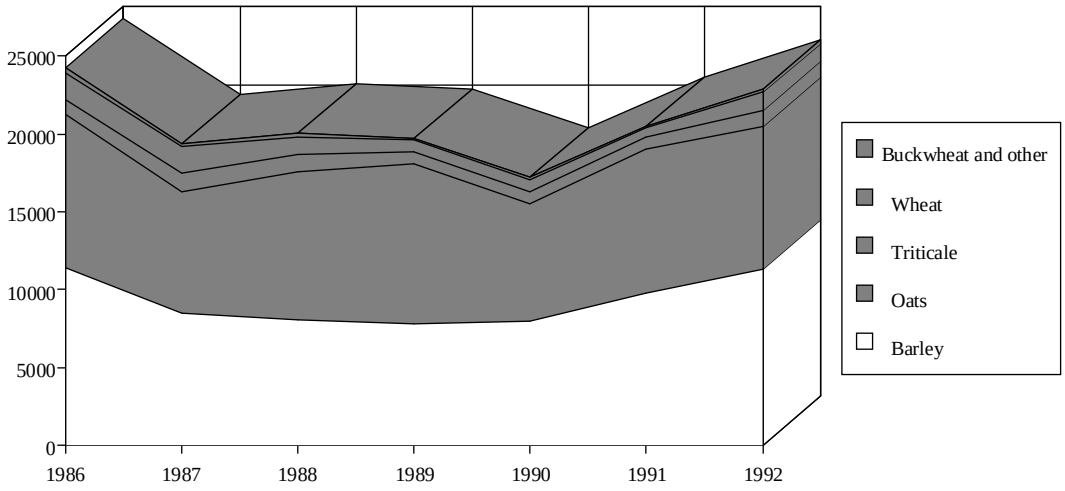
Figure 2.1.13. Production of cereals, TAS 1986-1992
Year Ended 31 March



Source: Table 2.1.9.

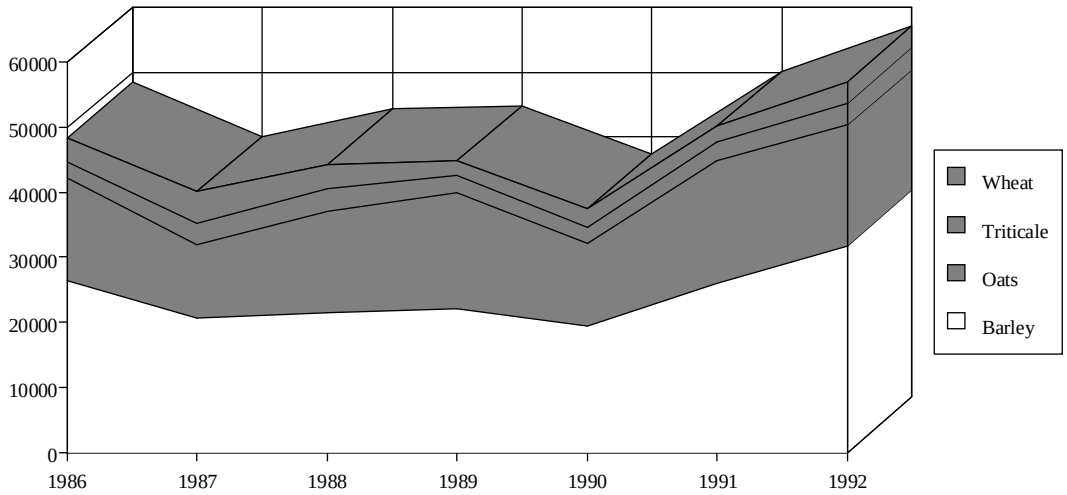
Area and production can also be viewed as figures which indicates the relative importance of each crop from 1986 to 1992.

Figure 2.1.14. Relative Grain Areas, TAS 1986-1992
Year Ended 31 March



Source: Table 2.1.9.

Figure 2.1.15. Relative Grain Production, TAS 1986-1992
Year Ended 31 March

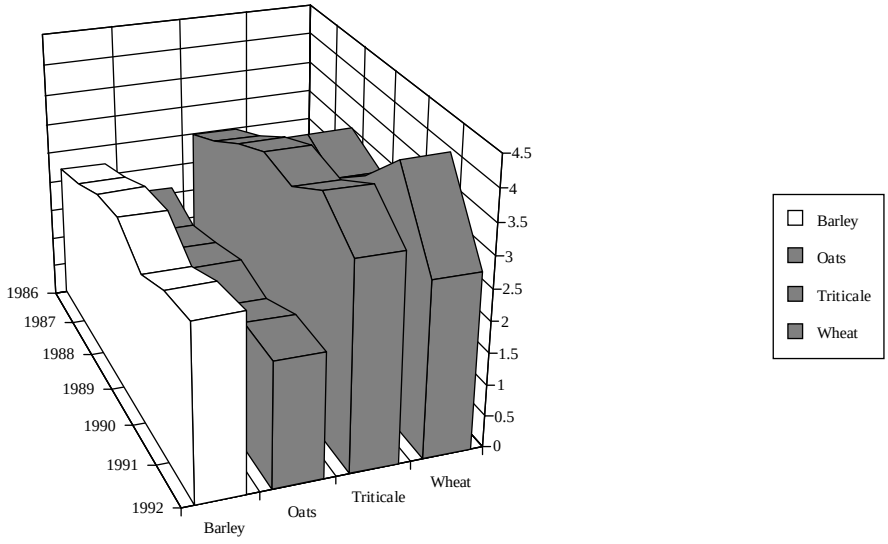


Source: Table 2.1.9.

There was a slight decline in the area devoted to wheat; this contrasts with the increases in plantings of the other grains. Figure 2.1.14 highlights the fact that total grain area sown has remained somewhat stable even though composition has changed slightly. Figure 2.1.15 highlights a sustained rise in production. These apparent trends must be seen from the perspective of a greater time span which would reveal that areas sown to all cereals have been on the decline almost since the turn of the century.

Figure 2.1.16 highlights the increase in grain yields.

Figure 2.1.16. Yield of cereals, TAS 1986-1992
Year Ended 31 March



Source: Table 2.1.9.

Oats and barley have experienced some increase since 1986. This gain in yields has had the effect of stabilising production over the past 30 years despite reductions in area planted. (DPIF&E Tasmanian Rural and Fishing Industries in Brief, 30 June 1992). Yields for wheat appear more variable than for other grains.

The table below gives an indication of farmers' expectations in area to be sown by the different cereals.

Table 2.1.10 Area intended to be sown to cereals for all purposes, Tasmania
Year ended 31 March

Cereals	1992(Hectares)	1993(Hectares)	1994 P (Hectares)
Barley	8797	9260	15000
Oats	16191	16920	15460
Wheat	1297	1560	2200

Source: ABS 7111.6

Area for barley was underestimated relative to actual whilst areas for oats and wheat were overestimated.

Table 2.1.11. Farm Stocks of Fodder, Tasmania
Year ended 31 March 1991-93

Feed Stocks	1991(tonnes)	1992(tonnes)	1993(tonnes) Preliminary
Barley	9880	15010	8820
Oats	14655	14170	18520
Wheat	4823	4200	2590
Cereal Grains	29358	33380	29930
Hay	273640	245830	374620
Silage	123420	113850	198790

Source: ABS 7111.6

Farm stocks appear to have changed somewhat. Stocks increased from 1992 to 1993 for oats, hay, and silage. They fell in the case of the other cereal grains.

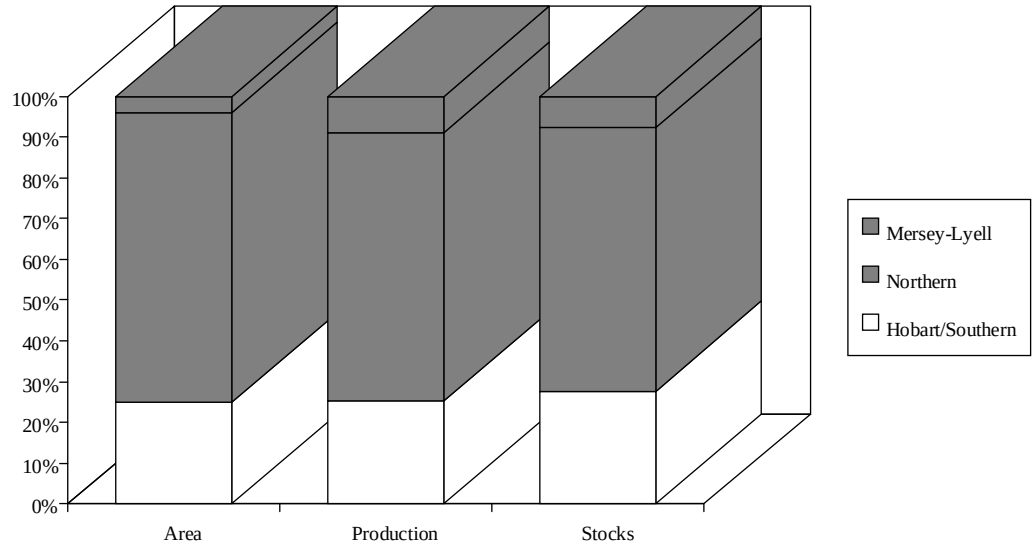
Table 2.1.2 provides a dis-aggregated look at Tasmanian principal agricultural crop area, production, and inventory, broken down by region.

Table 2.1.12. Principal Agricultural Statistics year ended 31 March 1993

Description	Hctrs/ Tns	Greater Hobart/ Southern	Northern	Mersey-Lyell	Tasmania
Cereals for grain-					
Barley					
Area	H	3910	11110	610	15630
Production	T	10220	26720	3590	40530
Stocks	T	2440	5700	680	8820
Oats					
Area	H	290	6980	220	9490
Production	T	5480	13650	440	19570
Stocks	T	6650	11670	200	18520
Wheat					
Area	H	590	550	70	1210
Production	T	1730	3550	410	5700
Stocks	T	640	1230	710	2590
Hay & Pasture					
Area	H	9310	30120	22690	62130
Production	T	49080	152820	136450	338360

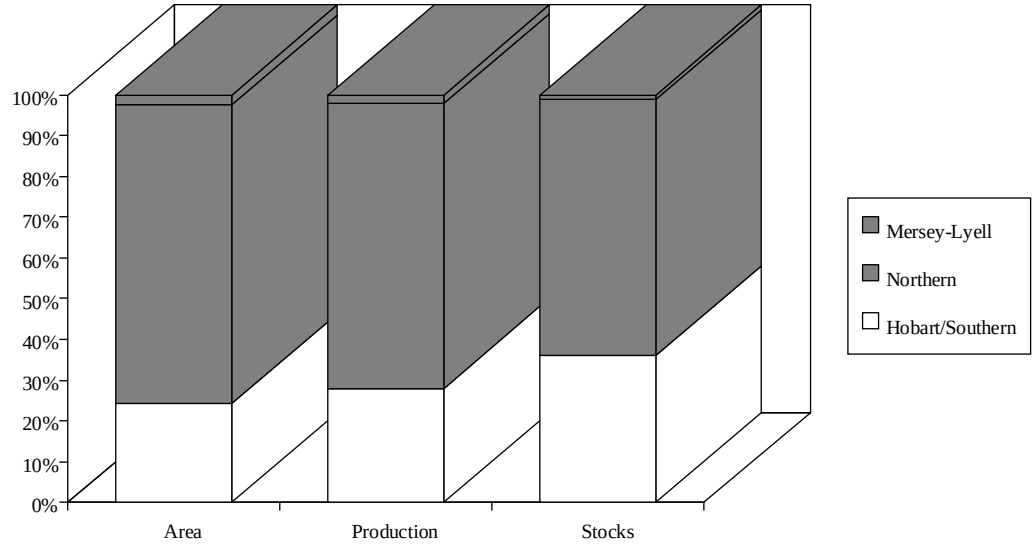
Source: ABS 7111.6

Figure 2.1.17. Barley--Area, Production, and Stocks by region in Tasmania Year ended 31 March 1993



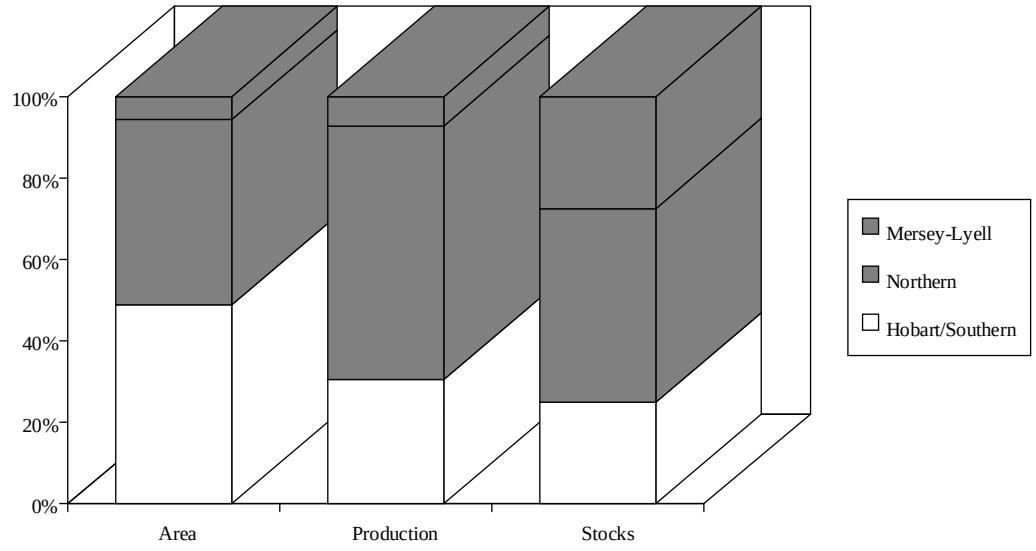
Source: Table 2.1.12.

Figure 2.18. Oats--Area, Production, and Stocks by region in Tasmania Year ended 31 March 1993



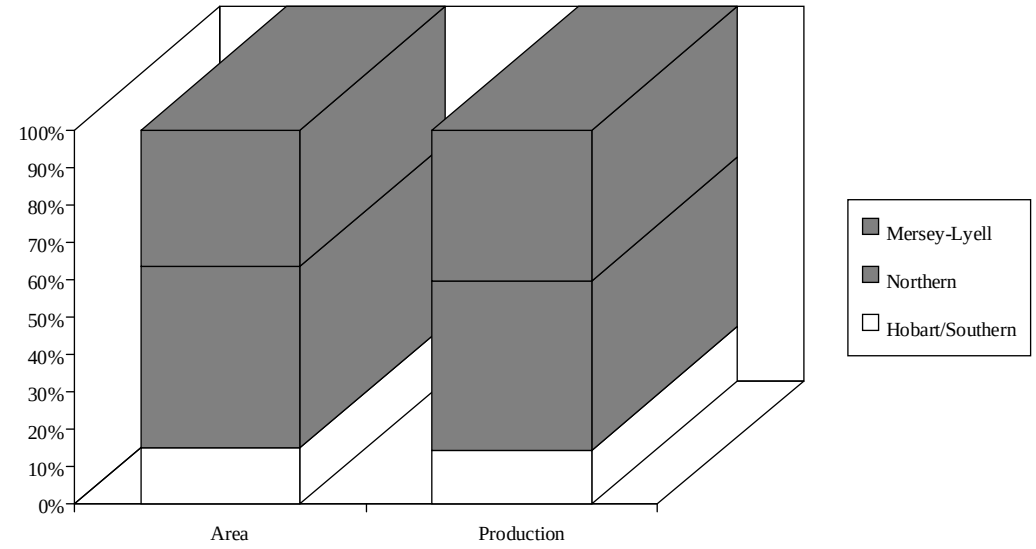
Source: Table 2.1.12.

Figure 2.1.19. Wheat--Area, Production, and Stocks by region in Tasmania Year ended 31 March 1993



Source: Table 2.1.12.

Figure 2.1.20. Hay Pasture--Area and Production by region in Tasmania Year ended 31 March 1993



Source: Table 2.1.12.

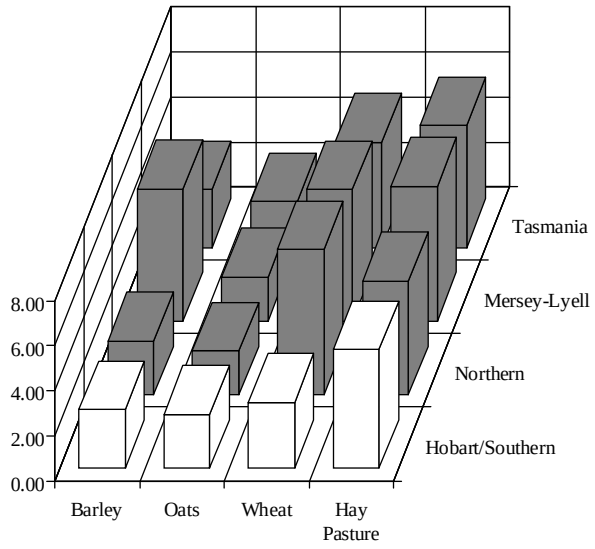
The Northern region of Tasmania is largest grain-growing portion of the state, with about 70 % whilst Mersey-Lyell being the least with less than 10 % except in the case of wheat.

Table 2.1.13. Principal Crops--Yields by region in Tasmania
Year ended 31 March 1993

	Hobart/ Southern	Northern	Mersey-Lyell	Tasmania
Barley	2.61	2.41	5.89	2.59
Oats	2.39	1.96	2.00	2.06
Wheat	2.93	6.45	5.86	4.71
Hay	5.27	5.07	6.01	5.45
Pasture				

Source: Table 2.1.12.

Figure 2.1.21. Principal Crops--Yields by region in Tasmania
Year ended 31 March 1993



Source: Table 2.1.13.

A few differences arise in yields. In particular, Mersey-Lyell yields the highest tonne per hectare for barley whilst the Hobart/Southern region yields much less than the other regions for wheat. Variability across regions is least for oats and greatest for wheat. The Mersey-Lyell region performs best for all but oats. We must not read too much into these figures with regard to variability as they are only for one year.

Grain legumes account for less than 1% of Tasmanian gross value for crops as noted above. Shown below are more detailed data on area, production, and yield.

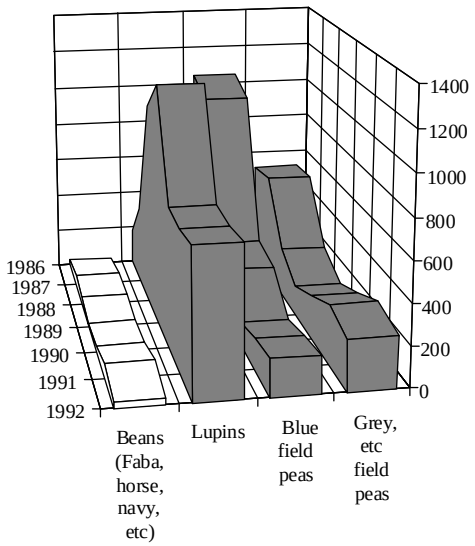
Table 2.1.14. Legumes Mainly for Grain: Area, Production and Yields
Year Ended 31 March

	1986	1987	1988	1989	1990	1991	1992
Area (hectares)							
Beans (Faba, horse, navy, etc)	25	45	43	24	32	77	30
Lupins	183	398	1036	1215	703	697	727
Peas, field -							
Blue	1042	983	297	264	105	152	185
Grey and other	512	536	244	155	225	297	253
Production (tonnes)							
Beans (Faba, horse, navy, etc)	n.a.	n.a	n.a.	61	103	182	62
Lupins	n.a.	n.a	n.a.	2061	861	1052	1126
Peas, field -							
Blue	2133	1222	593	539	130	293	404
Grey and other	830	646	405	314	535	799	666
Yield (per hectare)							
Beans (Faba, horse, navy, etc)	n.a.	n.a	n.a.	2.54	3.22	2.36	2.07
Lupins	n.a.	n.a	n.a.	1.70	1.22	1.51	1.55
Peas, field -							
Blue	2.05	1.24	2.00	2.04	1.24	1.93	2.18
Grey and other	1.62	1.21	1.66	2.03	2.38	2.69	2.63

Source: ABS 7114.6

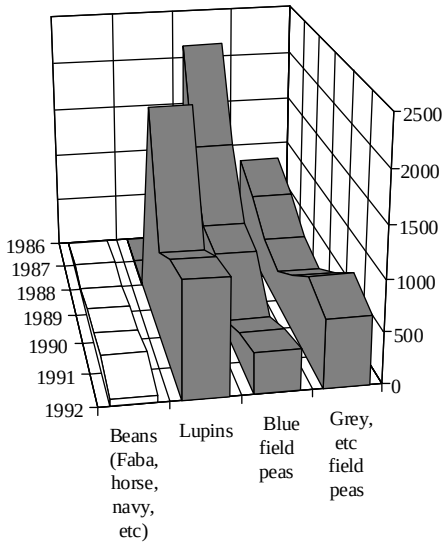
There appears to be more variability in area, production, and yields than for cereals for grain as the figures below indicate.

Figure 2.1.22. Legumes Mainly for Grain: Area in hectares
Year Ended 31 March



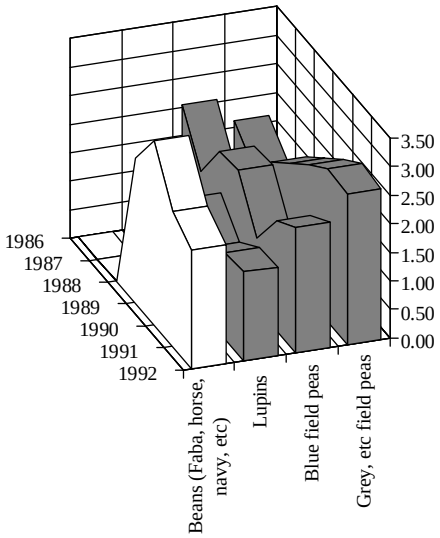
Source: Table 2.1.14

Figure 2.1.23. Legumes Mainly for Grain: Production in tonnes
Year Ended 31 March



Source: Table 2.1.14.

Figure 2.1.24. Legumes Mainly for Grain: Yields in tonnes per hectare
Year Ended 31 March



Source: Table 2.1.14.

Area devoted to lupins varies the most whilst production varies about equally for lupins and both varieties of field peas. Finally, yields vary about equally for all legumes.

A monetary view of Tasmanian agricultural commodities provides a different picture of what is happening. Gross value of production provides a common standard by which to judge the relative importance of commodities. ABS defines gross value as "the value placed on recorded production at the wholesale prices realised in the market place." (ABS 7503.6) Local value is gross value less marketing costs. The table below presents gross margins for major categories of Tasmanian agricultural commodities.

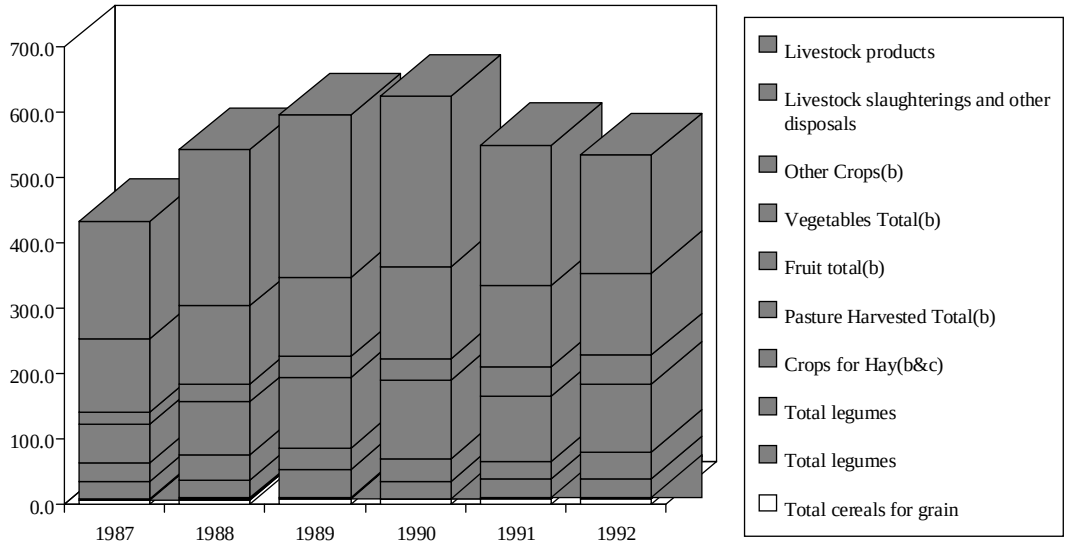
Table 2.1.15. Gross Value of Commodities(a), Tasmania ($M)
Year ended 31 March

Description	Gross Value($M)					
	1987	**1988**	**1989**	**1990**	**1991**	**1992**
Barley	3.1	3.5	4.0	4.0	4.9	5.1
Oats	1.2	1.7	2.9	2.1	2.8	2.5
Wheat	0.7	0.7	0.4	0.5	0.4	0.6
Other cereals for grain(b)	0.6	0.5	0.7	0.7	0.6	0.7
Total cereals for grain	5.6	6.4	7.9	7.3	8.7	8.9
Peas, field	0.6	0.5	0.2	0.2	0.3	0.3
Other Legumes(b)	0.2	0.3	0.5	0.2	0.3	0.3
Total legumes	0.8	0.8	0.7	0.4	0.6	0.6
Crops for Hay(b&c)	0.7	1.5	1.8	0.5	0.6	0.9
Pasture Harvested Total(b)	26.3	27.0	42.5	26.4	27.7	28.1
Fruit total(b)	29.6	38.5	32.9	34.8	27.2	40.8
Vegetables Total(b)	59.6	81.5	107.1	120.0	100.6	104.2
Other Crops(b)	18.0	26.9	32.2	32.5	43.8	43.9
Total crops	**140.6**	**182.5**	**225.1**	**221.9**	**209.2**	**227.4**
Livestock slaughterings and other disposals	111.5	120.0	122.1	140.8	125.2	125.7
Livestock products	180.4	239.1	247.6	261.0	214.9	180.4
Total commodities	**432.5**	**541.6**	**594.8**	**623.7**	**549.3**	**533.5**

(a) Excludes crops & pasture harvested for green feed or silage.
(b) Coverage ratio estimated from related commodities.
(c) Excludes pasture harvested for hay.
Note: Coverage ratios were used to deflate figures for 1987 to 1988.
Source: ABS 7503.6

Figure 2.1.25 highlights several aspects of Table 2.1.15. Firstly, overall gross value has fallen since 1991. Secondly, livestock products have fallen in importance relative to other commodities. This category has fallen by 10 percentage points relative to its high in 1990. Both these effects can be explained by the world-wide slump in prices of these products since 1990

Figure 2.1.25. Gross Value of Commodities(a), Tasmania ($M)
Year ended 31 March



Source: Table 2.1.15.

Table 2.1.16 presents figures on the Gross Value of Agricultural commodities produced by each region of Tasmania.

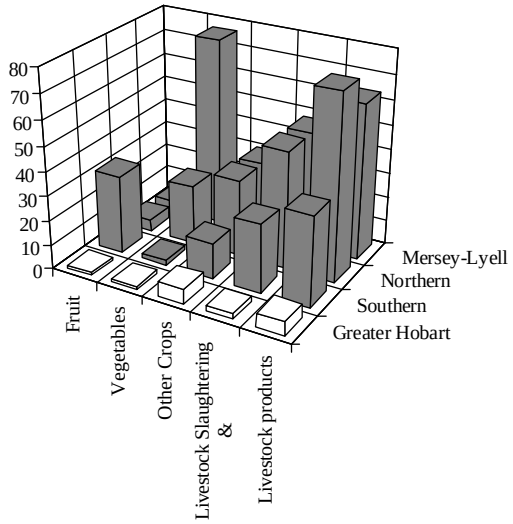
Table 2.1.16. Gross Value of Agricultural commodities produced by statistical division, Tasmania, 1991-1992($Million)

Description	Greater Hobart	Southern	Northern	Mersey-Lyell	Tasmania
Crops					
Fruit	1.1	31.9	4.4	3.5	40.8
Vegetables	1.3	2.1	24.0	76.7	104.2
Other Crops	6.0	14.6	31.6	30.1	82.4
Total	8.4	48.6	60.1	110.3	227.4
Livestock Slaughtering &	2.2	28.0	48.1	47.4	125.7
Livestock products	5.4	36.6	75.1	63.4	180.4
Total Agricultural	16.0	113.2	183.2	221.1	533.5
% of Tasmanian Total	3.0	21.2	34.3	41.4	100.00

Source: ABS 7503.6

It is obvious from the figure below that gross value for each commodity varies in its relative importance by region.

Figure 2.1.26. Gross Value of Agricultural commodities produced by statistical division, Tasmania, 1991-1992($Million)



Source: Table 2.1.16.

Clearly fruit is most important in the Southern region whilst vegetables have greatest importance in the Mersey-Lyell section of the state. The livestock categories are important in all regions. The 'other crops' category of which grains, grain legumes, and oilseeds have the highest presence in the Northern and Mersey-Lyell regions.

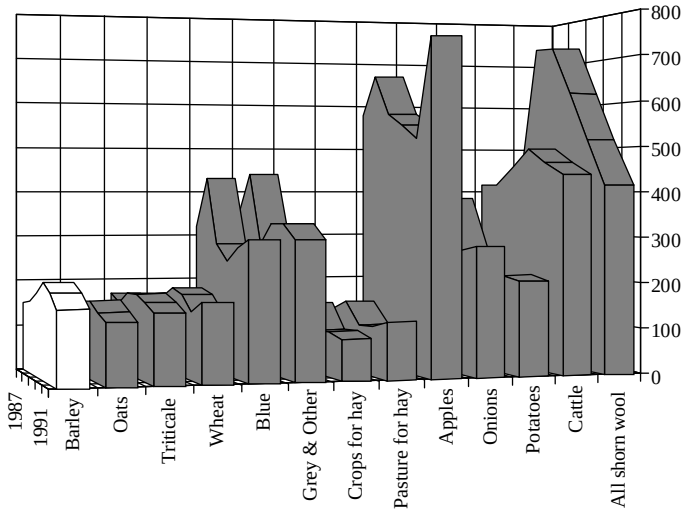
Average unit gross values represent a weighted average 'price' for the products in all the markets in which it is sold.

Table 2.1.17. Average Unit Gross Value of Commodities, Tasmania
A$ per Tonne unless otherwise Stated, Year ended 31 March

Description	1987	1988	1989	1990	1991	1992
Cereals for grain						
Barley	149.88	156.62	181.22	206.33	188.9	160.42
Oats	110.4	108.2	161.11	167.6	147.33	133.47
Triticale	166.76	150.92	177.23	180.8	167.4	150.19
Wheat	145	165	187.79	176.8	146.99	170.41
Legumes mainly for grain						
Peas, field						
Blue	320	430	285	250	280	300
Grey & Other	350	440	285	330	330	300
Crops for hay	110	130	150	95.67	99.48	89.21
Pasture for hay	112.32	131.92	151.4	105.97	108.93	123.69
Fruit						
Apples	579.39	665.59	574.51	547.97	515.4	732.51
Vegetables						
Onions	302.06	373.95	327.69	384.53	269.91	282.7
Potatoes	151.12	167.28	197.72	202.3	215.7	207.2
Livestock						
Cattle (on the hoof)	414.95	415.11	455.92	496.63	464.58	438.6
Livestock products						
All shorn wool produced (cents/kg)	427	734	732	623	516	415

Source: 7503.6 & 7114.6

Figure 2.1.27. Average Unit Gross Value of Commodities, Tasmania
A$ per Tonne unless otherwise Stated
Year ended 31 March



Note: Cattle price is for on the hoof. Price for wool is in cents per kilo.

The figures above make clear the extent to which prices of most commodities have dropped in the last three years. In particular, wool has dropped from a high of 734 cents per kilo in 1988 to 415 cents per kilo in 1992, nearly half the price. Other commodities have not suffered as much a decline. Indeed, some have experienced increases as, for example, has been the case for apples.

2.2 Demand

Demand for cereals forgrain

Figures on area, production, yield, gross value, and gross unit values of commodities help to fit grains, grain legumes, and oilseeds in perspective into the supply side of the equation. It is now necessary to reveal who are the major end users of these crops. Locations of users fall into three geographic areas. The first set of users is located in Tasmania and shall be referred to as 'Tasmanian' or 'domestic' demand'. The second group is located in other states of Australia and shall be referred to as 'Australian demand.' Finally, the last set of users is located overseas and shall be referred to as 'export demand.' There is some mixing of categories as some crops are shipped to the mainland, only to be value added and then exported overseas. Users can also be divided by types of use as will be apparent *anon*.

The nature of the demand for grains, grain legumes, and oilseeds is that Tasmanian producers are 'price takers.' That is, in order to sell grain, they can expect to charge no more than the mainland price, plus freight for the same product. Because the market is competitive Tasmanian producers cannot expect to have a perceptible influence on price. When Tasmanian producers attempt to charge more than the mainland price plus freight, buyers import their requirements. It has been said by Tasmanian millers that the other attraction of importing is that when large quantitities of uniform quality grain are required it is simpler to import all of their requirements rather than bother with small quantities of varying quality grown locally.

One familiar consequence of being a price takers is that increases in Tasmanian production costs cannot be passed on to the buyer. If the profit squeeze is too much, local production may fall dramatically as growers shift land use into more profitable crops.

The same argument applies in reverse for Tasmanian exports of grain. The price received by the grower will be the market price on the mainland or in the other foreign country, *less* the cost of shipping. This generalisation must be tempered in situations where buyers perceive a distinctive characteristic that makes the local product more highly valued. In these circumstances the valued product may command a premium over product of its competitors. Not too much should be made of the notion that a local product can command a "niche" market. This may give the product a premium price but it will not insulate it from the general price level for the product.

Thus an exception to the 'import-pricing parity' described above is when the crop has some exceptional characteristic which may attract particular interest is Franklin Barley which not only appears to have preferred varietal characteristics but also to be superior when grown in Tasmania.

Demand for Grains

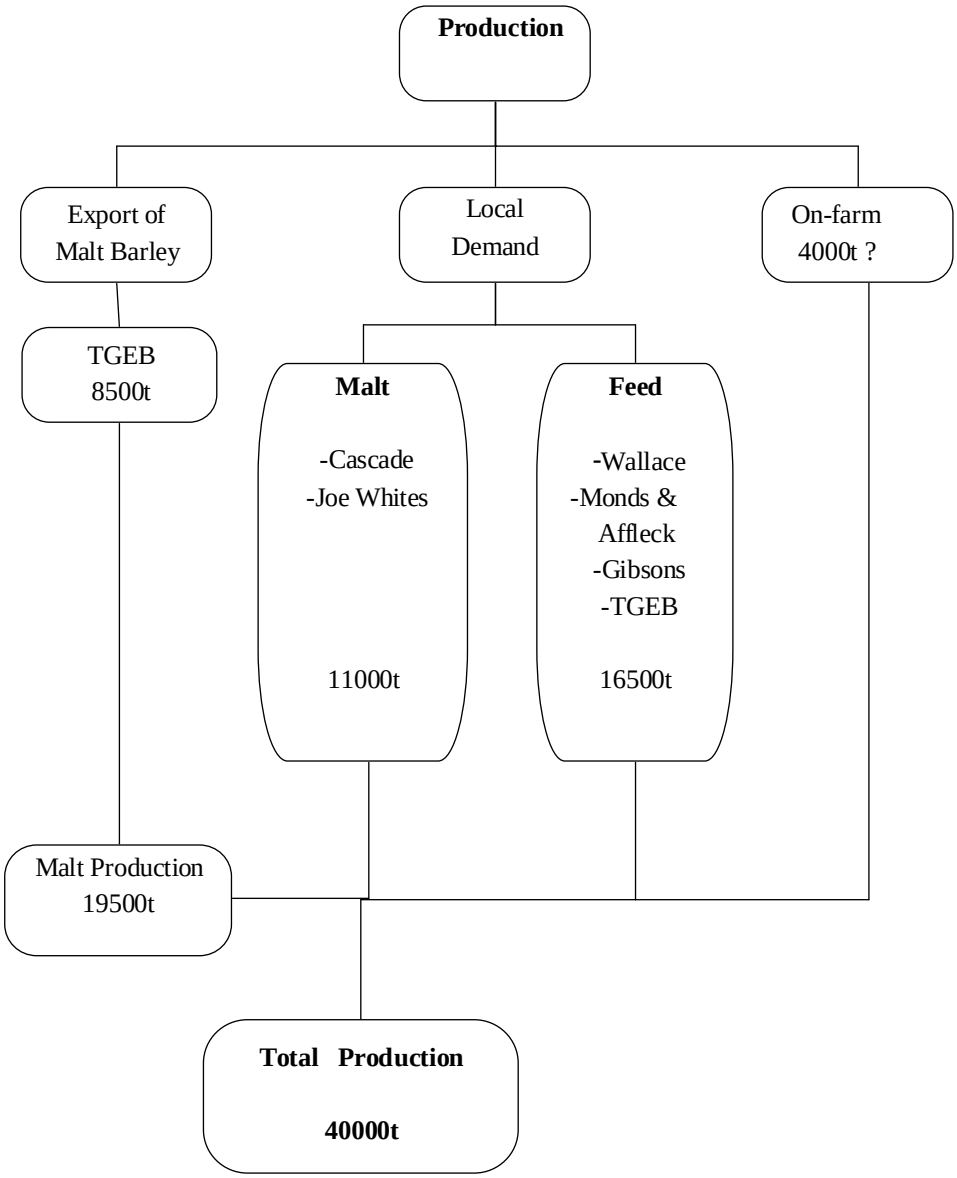
Demand in Tasmania for grains may be subdivided into raw and processed forms. Raw grain production consists of barley used for malting companies (both here, on the mainland, and overseas), piggeries, cattle feedlots, and other stockfeed. Oats, wheat, feed barley and triticale are used for stockfeed mills and livestock producers. Uses of raw grain have been mostly in the state, with the exception of malting barley of the 8000 tonnes exported to Western Australia in 1993.

Demand for processed grain is much less, with virtually all processed grain used within the state - with only minor exports of malted barley in the recent past. (DPIF June 1992 *Tasmanian Rural & Fishing Industries In Brief*).

DPIF in its *Tasmanian Rural and Fishing Industries in Brief, 30 June 1992* noted that there were three main manufacturers of stockfeed mixes, which combine imported and local grains. Monds and Affleck produce a range of stockfeed, supplying poultry and egg producers such as Pure Foods. Ingham Enterprises also produce stockfeed for poultry. Gibsons also produces feed for aquaculture.

The following flowchart illustrates the major sources of primary demand for Tasmanian barley.

Figure 2.2.1. Tasmanian Barley Demand, 1992/93



Source: TGEB

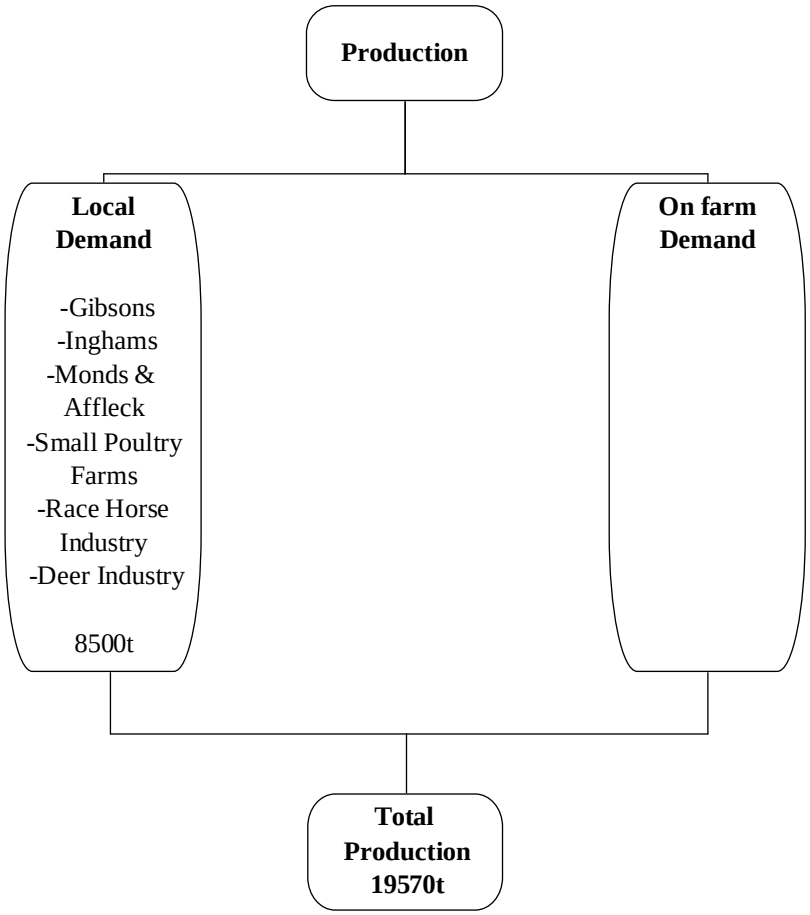
Cascade has the principal malt-house operation in Tasmania. Their demand for malting barley was 6000 tonnes this past year. Joe White Maltings demanded 5000 tonnes this past year which still is in storage. Malting occurring at their Quoiba plant ceased in 1991 with the closure of the Ovaltine factory. Presumably the grain will be shipped to the mainland for malting before re-export to Japan.

Further external demand came from Kirin(Australia) in Western Australia for 8600 tonnes of Franklin barley in the 1992/93 season. An additional 200 tonnes was exported to Adelaide Malting in South Australia.

Other markets include cattle feedlots, piggeries, and other stockfeed as noted above.

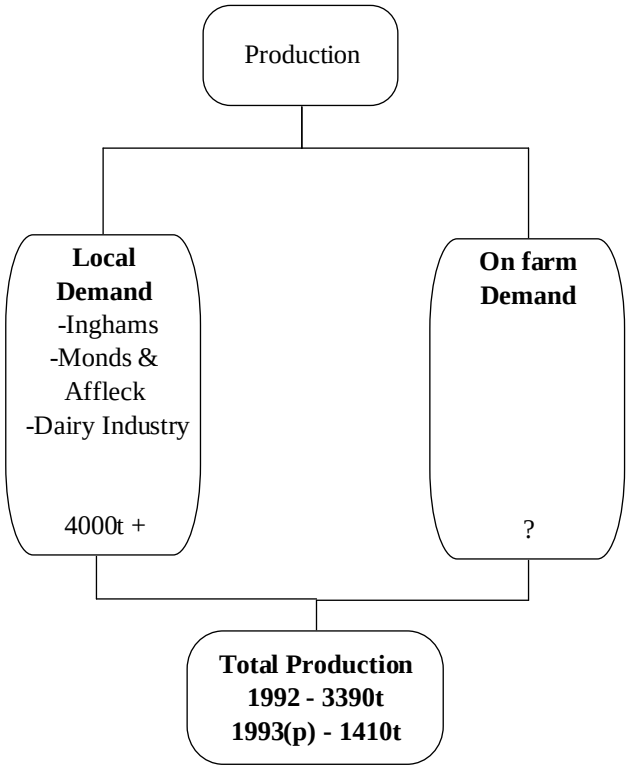
Figures below indicate end uses for feeding oats and triticale.

Figure 2.2.2. Tasmanian Demand for Feeding Oats, 1992-93



Source: TGEB

Figure 2.2.3. Tasmanian Demand for Feed Triticale, 1992/93



Source: TGEB

Oats, triticale, and wheat are used by stockfeed mills and in their raw form by livestock producers. Wheat for flour milling and producing starch is imported exclusively from the mainland. This has averaged around 60000 tonnes annually. However, on average, a further 20000 tonnes of wheat is imported to satisfy stockfeed demand (TGEB).

Demand for Grain Legumes

Only a small amount of grain legumes is grown in Tasmania as noted above in the subsection on production. Beans, lupins, and field peas total around 2258 tonnes of annual production. At the present time these are mostly for animal consumption within Tasmania and are supplemented by Australian production. Australian production, totals around 1,300,000 tonnes satisfying mostly domestic demand but also providing significant exports Almost all the demand for grain legumes such as lupins and lentils for human consumption comes from overseas and is worth about $A2-4 million per year.

Demand for Oilseeds

Oilseed is widely used in the Tasmanian food processing industry and hence might appear to offer considerable potential for local producers. The acknwledged problem for Tasmanian producers is not lack of demand, nor lack of ability to produce oilseeds, but the economics of establishing and operating a crusher in the State. No significant quantities of oilseeds are produced in Tasmania.

2.3 Exports and Imports

Exports and imports of grains for cereals
At the present time, only Franklin barley for malt is exported. The other cereals, wheat, triticale and oats are not exported in substantial quantities on a sustained basis because of quality, production cost, and freight factors.

The small scale of operations producing barley, wheat, triticale, and oats in Tasmania, along with the freight costs across Bass Strait, means that Tasmanian producers are currently not able to compete with mainland producers on a sustainable basis. Equally relevant is the fact that other farming activities offer higher returns. The contrast with mainland producers is apparent with the fact that average area planted to grain on farms in New South Wales average 350 hectares whilst in Tasmania the average size is closer to 40 hectares. It is only in the instance when a clear quality advantage exists (as in the case of exported Franklin malt barley with its higher malt extract) that higher costs of production and shipping are overcome. Factors affecting export potential are discussed within the context of Porter's Diamond of forces introduced in section 3.4.

The Table below presents tonnage shipments of wheat and barley to and from Tasmania.

Table 2.3.1 Wheat/Barley Receivals and Deliveries

Wheat Receivals(Tonnes)	**1991/92**	**1992/93**
ex Mainland		
to Hobart	15291	18642
to Launceston Inspection Head	26552	26442
to Devonport	24806	36926
to Burnie(in containers)		344
to Bell Bay(in containers)		40
to King Island(in containers)		127
Total	66649	82521
Wheat Deliveries(Tonnes)		
from Hobart	15846	16411
from Launceston	26436	25830
from Devonport	26994	33140
Total	69276	75381
Barley Receivals(Tonnes)		
Feed	423	422(TGEB)
Malting	1030	
Franklin		8633(TGEB)
Barley Deliveries(Tonnes)		
Feed	423	
Malting	1030	

Source: TGEB

Receivals of wheat by the Tasmanian Grain Elevators Board are used to supply deliveries to flour mills, starch producers, and feedstock users. A similar story holds for barley except that Franklin was exported to Western Australia. The difference between receivals and deliveries is the change in stocks held by the Tasmanian Grain Elevators Board over the year.

Some additional numbers on grain exports are shown below.

Table 2.3.2. Tasmanian Imports and Exports of Cereals, Grains & Wheat

Port Authority	Import/Export	Year	Mass Tonnage	Wharfage Tonnage
Devonport	Imports	1990/91	36 004	
		1991/92	24 806	
		1992/93	39 659	
Launceston	Imports	1990/91	33 996	38 155
		1991/92	34 794	40 630
		1992/93	27 331	28 647
	Exports	1990/91	133	285
		1991/92	1 654	2 782
		1992/93	780	

There was also 8610 tonnes of Franklin barley exported from the Port of Launceston to Western Australia in the 92/93 season.

Source: Port of Launceston Authority, Port of Devonport Authority.

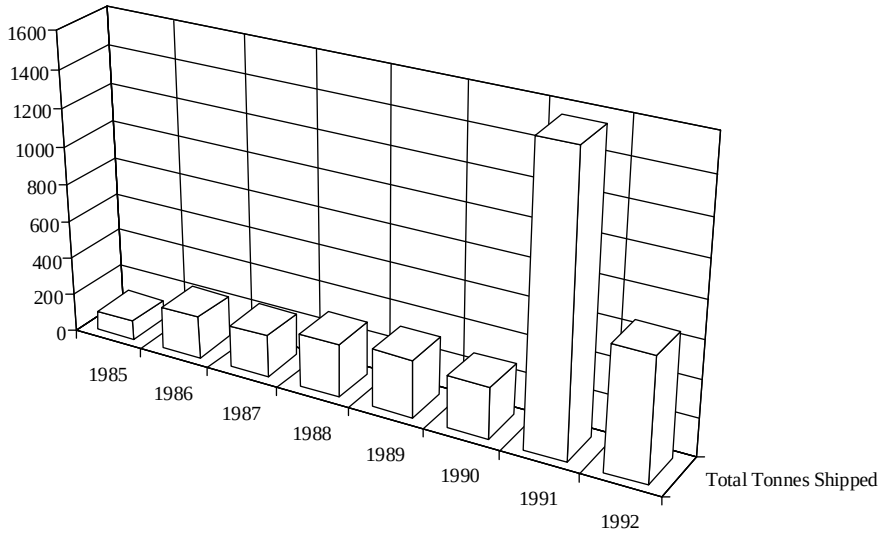
In addition to exports of cereals as grains there are small quantities of grains processed by manufacturers and then exported. Processed grain exports from 1985 to 1992 shipped from Tasmania and qualifying under the Freight Equalisation Scheme are presented in Table 2.3.3.

Table 2.3.3. Grain and Cereal Preparation Shipment from Tasmania to the Mainland (Northbound Freight Equalisation Shipments)

Year Shipped	Total Tonnes Shipped	Total Compensation
1985	101.076	8400
1986	222.682	17075.39
1987	225.057	17042.64
1988	284.367	177786.62
1989	306.049	19921.23
1990	274.588	16844.27
1991	1551.980	40956.57
1992	649.816	18576.43

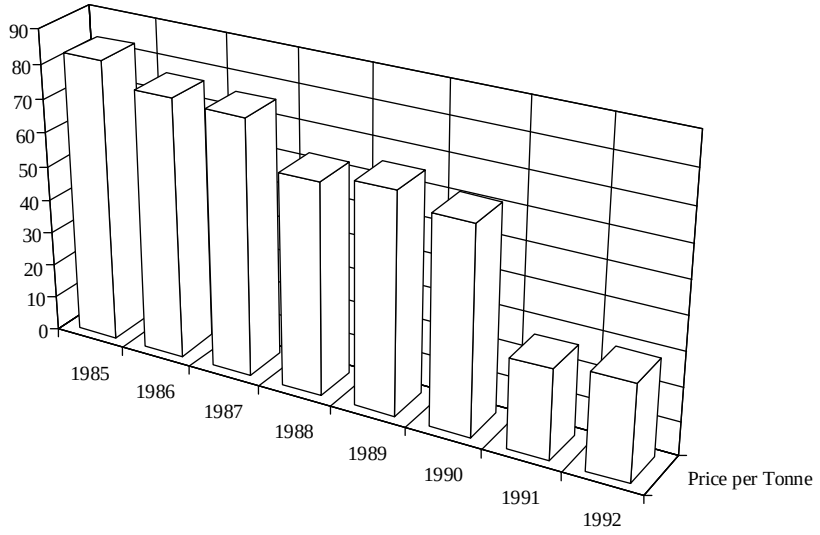
Source: Commonwealth Department of Transport and Communications

Figure 2.3.1. Grain and Cereal Preparation Shipment from Tasmania to the Mainland



Source: Table above

Figure 2.3.2. Grain and Cereal Preparation Shipment from Tasmania to the Mainland



Source: Table above.

Tonnes shipped has varied dramatically in the past few years as well as price paid. The price changes may reflect more the composition of the shipment for that year more than falling price.

Information provided by ABARE but not yet verified, presented below in Table 2.3.4, shows small quantities of grain shipped to overseas destinations.

Table 2.3.4. Tasmanian Exports of Grains

Description	Destination	Year Ending	Tonnes	Value $A	Unit Value $A
Oats in Bags	United Arab Emirates	June 1991	76	14790	194.61
Oats in bags	United Arab Emirates & Japan	June 1992	154	62632	406.70
Wheat(excl. durum) & flour, in bags	New Caledonia	June 1992	22	3986	181.18
Grain Sorghum, in bulk	Japan	June 1992	22	4140	188.18

Source: ABARE Canberra

Exports of grain legumes
Information provided by ABARE , presented below in Table 2.3.5, shows small quantities of grain shipped to overseas destinations.

Table 2.3.5. Tasmanian Exports of Grain Legumes

Description	Destination	Year Ending	Tonnes	Value $A	Unit Value $A
Dried, shelled peas, not split, not for cultivation	Taiwan	June 1992	21	6970	331.90
Lupins	Philippines	June 1991	30	7115	237.17
Dried shelled peas, not split, not for cultivation	Kuwait	June 1993	43	19366	450.37
			Kgs	**Value**	**Unit Value**
Dried, shelled beans of the species vigna mungo(L. Hepper or Vigna radiata(l.) Wilezek, not for cultivation	Japan	June 1992	1030	1967	1.91
Dried, shelled kidney beans for cultivation	Japan	June 1992	1040	19643	18.89
Dried shelled broad beans & horse beans, not for cultivation	Singapore	June 1993	18500	7560	0.41

Source: ABARE Canberra

2.4 Infrastructure of the Grains Industry

Infrastructure
The existing level of physical capital facilitating grain throughput adequately supports current levels of production. It is geared toward occasional domestic demand for locally produced grain, supplemented by imports. Facilities are particularly good for hard-wheat receivals which is directed to flour mills and starch manufacturers. Unfortunately gone are the days of the last century when the grain trade needed no special export facilities. The first successful shipment of Franklin malt barley to Kirin in Western Australia occurred more as a result of determination on the part of those involved in obtaining the use of a woodchip loader, than to the existence of dedicated loading facilities.

Storage facilities have been developed to receive wheat and other cereals for milling The quantity stored is roughly equal to around 8 to 12 weeks worth of consumption around the state. This is not considered to be large capacity and highlights the limitation of grain facilities in Tasmania. Part of the Franklin barley shipment to Kirin had to be stored in makeshift buildings prior to shipping which will not be available in the longer term.

Grain drying facilities of the State were only just adequate to dry barley used to make up the 8,500 tonnes exported to Western Australia in 1993. TGEB required that barley be dried and co-operative efforts of producers resulted in the procurement of a small portable dryer.

No specialised facilities exist for either grain legumes or oilseeds and once again this is seen as a bottleneck that inhibits production.

Shipping, Storage, and Freight
The ports of Devonport, Launceston, Burnie, and Hobart all handle containerised and general cargoes for shipping.

The cost of freight for Tasmanian cereals is a function of a number of variables. These are, destination, volume, and type of cargo. Type of cargo has implications for what sort of container is used. For example, dry cargo could be shipped in either open or enclosed containers.

The rates for shipment from Tasmania will vary by port of exit; charges, ex Burnie, are likely to be less than those available ex Hobart.
(TDA *Tasmania's Business Environment*, March 1993)

Table 2.4.1 below illustrates the rates charged ex Hobart to both Sydney and Melbourne.

Table 2.4.1. Freight costs ex Hobart March 1993

LCL(less than container load)	**per cubic metre**
ex Hobart	
to Melbourne	A$65
to Sydney	A$95
FCL(full container load)	**per 6.10 metre container (per cubic metre)**
ex Hobart	
Dry Cargo	
to Melbourne	A$990 - A$1395 (A$32 - A$45)
to Sydney	A$1450 - A$1890 (A$47 - A$61)
Refrigerated Cargo	Premium of approx. A$60 per container

Note: A 6.1 metre container contains approximately 31 cubic metres.
Source: TDA Tasmania's Business Environment, March 1993

The Tasmanian Freight Equalisation Scheme (TFES) provides assistance to shippers of certain non-bulk cargo between Tasmania and interstate in an effort to lessen the cost disadvantage suffered in Tasmania. Conditions for northbound and southbound assistance vary. (TDA Tasmania's Business Environment, March 1993)

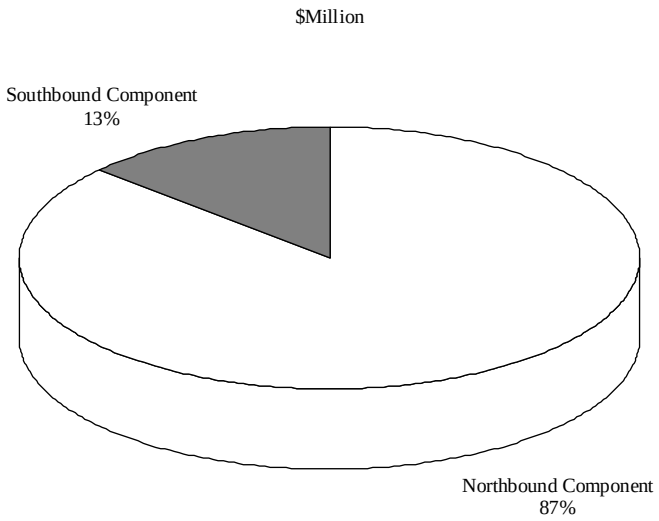
The total amount of TFES assistance given in 1991/92 is set out below:

Table 2.4.2. TFES Assistance, 1991/92

	$ Million
Northbound Component	28.4
Southbound Component	4.3
Total	**32.7**

Source: TDA Tasmania's Business Environment, March 1993.

Figure 2.4.1 TFES Assistance, 1991/92



Source: Table 2.4.2.

Both storage and truck receival limitations impede reductions in sea freight rates and TGEB operating costs that might be achieved by reducing the number of discharge ports. (*Executive Summary Review of the TWFS, January 1993*)

Insufficient grain storage may lead to prices varying from mainland levels. For example, the months of January, February, March, and April in 1992 feed wheat sold for less than the cash price on the Mainland because of a surplus and inadequate local storage. Later in the year local supplies were inadequate and imports were required.

At present, infrastructure developments under investigation, or proposed, include the use of portable loading facilities capable of being located either in the TEGB or at Devonport, an

increase in storage capacity and discharge facilities at Devonport, and ways of reducing the cost of waterfront labour.

Currently, the State's cleaning plant capacity is adequate for handling the quantity of seed production. The State has five privately owned seed cleaning plants, and one mobile cleaner which is used primarily for farm cleaning of cereal crops and grain legumes. The DPIFE own a cleaning plant which is located at the Cressy Research Station. (DPIFE Tasmania Rural & Fishing Industries In Brief June 1992)

The table below sets out current capacity at the respective handling centres.

Table 2.4.3. Capacity of Tasmanian Silos

Port	**Number of Units**	**Capacity of Units**	**Capacity of Units**	**Total Capacity**
Hobart	4	2200	8800	8800
Launceston	4	2200	8800	
	2	1300	2600	11400
Devonport	4	2200	8800	
	4	500	2000	10800
Total	18			**31000**

Source: TGEB

Section Three - Analytical Framework

3.1 Introduction

Section Three provides the framework that will be used to investigate the potential within the Tasmanian grains industry for import replacement or export development It considers some of the relevant background literature and the ways in which the ideas that have been put forward can be employed in the context of the study.

This Section draws heavily on a recent study into Tasmanian Export and Import Replacement Opportunities (Felmingham and Attwater, 1991) which defines a gap as,

> 'a market niche which may be profitably filled by local suppliers on a sustainable basis without the need for subsidies' (p.3)

It is pointed out that a number of considerations are relevant to determining whether such a gap exists. They include the realisation that both the demand and supply sides of a market are relevant when determining the existence of a gap. Felmingham and Attwater argue against a simplistic approach that sees a niche simply in terms of demand not fully supplied by existing producers.

The very notion of import replacement carries with it the idea that a local industry may be able to provide an existing domestic market with a preferred product even though that market is currently being met by imports.

Nor, argue Felmingham and Attwater, should one discount the emergence of supply driven gaps by domestic producers who 'create new products and subsequently find markets for them.'

Basic to the notion of a niche is the idea that a market opportunity is recognised by an industry, that the conditions indicate that the industry will be able to retain the market over a period of time because it is able to offer a product, or a service, for which buyers have no strong alternative. In short the industry's product is attractive to buyers and its position in the market cannot readily be challenged.

To Felmingham and Attwater such a situation is unlikely to come about unless a suitable domestic economic environment exists to support the product or the supplying industry. This precondition will be referred to as the consideration of the opportunities for Tasmanian grains and legumes proceeds.

3.2 Alternative Development Strategies

Of fundamental interest has been the debate about how industries emerge and the types of development strategies that are needed to bring them into existence. Felmingham and Attwater describe polar views which they label as 'big bang' and 'small is beautiful'. Both views make a contribution to the debate since both raise questions about the directions in which a Tasmanian grains industry might develop, and what the role of development strategists might be.

Gaps created through Big Bang Development Strategies.
This is characterised most commonly as the opportunities for niche development that emerge from the development of major investment projects. Thus HEC developments in Tasmania in the 1950s and 1960s are cited as major developments from which numerous small business opportunities developed. Whilst such development strategies have largely disappeared in the modern environment, suggestions that Tasmania may have the potential to develop a major grains and seeds industry have drawn something from this model, or more particularly the type of thinking that underpins it.

Typical of this approach consists of a strongly held belief that it may be possible to develop a significant grains industry in Tasmania but that such an industry will only succeed, if it reaches a critical mass. To enable it to do so, high levels of support and substantial infrastructure investment will be required to enable to reach this level.

Some examples of the view that major initiatives are needed for the industry to develop are,

'The problem with Franklin barley is not whether there is demand, but whether Tasmanian farmers can produce enough to meet that demand.'

'There is plenty of interest overseas in Tasmanian Franklin barley for quantities in excess of 20,000 tonnes. The problem is to find those mainland or overseas buyers who are willing to take shipments of 5,000 tonnes or less since it is orders of this size that can readily be met by the existing industry.'

'The problem created by a lack of a suitable infrastructure, including storage, drying and loading facilities is the critical restraint that prevents the development of an export gains industry.'

'It is estimated some $5 million will be required to upgrade the maltings at Quoiba which will be needed if Tasmanian barley is to form the basis of new value added industries.'

'The oilseed industry will not develop without a crusher.'

These comments must not be taken as being critical of this particular directional strategy. Nevertheless, the 'big push' development strategy must be labelled 'high risk' precisely because it calls for significant investment of funds. Such costs will, of necessity, be set against the perceived likelihood of success and the magnitude of the rewards from this success.

It must also be said that the recent history of the development of new primary industry based activities in Tasmania underlines the high risk levels and the pain of the development stage.

The essential oils industry, poppies and the salmonid industry may all be cited as examples of primary industries with extremely promising prospects that have required considerable development funds and have faced the development stage with markedly varying degrees of success. Thus whilst it may be the case that a big push approach is called for to establish an industry, such an approach should not be undertaken without a searching examination of the risks and in particular whether Tasmania has the fundamental conditions necessary to reduce that risk to an acceptable level to investors, particularly if the funds are to come from government sources.

Small is Beautiful

The idea that small businesses have a better chance of succeeding than large developments has gained strong support in Tasmania in recent years. It has appealed to those who recognise the realities of a small Tasmanian market and who are attracted by the suggestion that small business offers the opportunities for entrepreneur ship, personal attention to detail and high productivity. The advice given to small business in Tasmania to pursue niche markets, rather than to attempt to compete in mass markets, where the Tasmanian product is unlikely to have a sustainable position, has tended to foster the small is beautiful view. It inherently embodies the idea that an industry can emerge as a result of the aggregate effects of many relatively small operators perceiving and taking advantage of opportunities as they emerge.

The approach is essentially a cautious one, which is likely to embody such low risk strategies as a slow 'roll out' on the part of individual business operators, as they seek to establish their technology, operational production arrangements and marketing arrangements. For farmers coming from existing crop or mixed farming operations it may be much more attractive to make changes at the margin than to make wholesale changes in the direction in which their farming is taking them. Again, the willingness to commit to new crops as a major component of an enterprise may be strongly influenced by the perceived risk and uncertainty involved in the adoption of a farming pattern that includes cereals. It will also take into account the returns from alternative farming activities.

A similar slow roll out may be appropriate, though often less readily achievable, in downstream value adding industries. Hence this cautious development of the Tasmanian grains industry may require the identification of small and growing opportunities for domestically based small value adding industries in Tasmania.

Typically then, the 'small is beautiful' approach may include the development of a grains industry as farmers plant more cereals for on-farm uses target import substitution in existing value added industries and supply relatively small quantities of grain that facilitate the creation of new downstream value-adding industries.

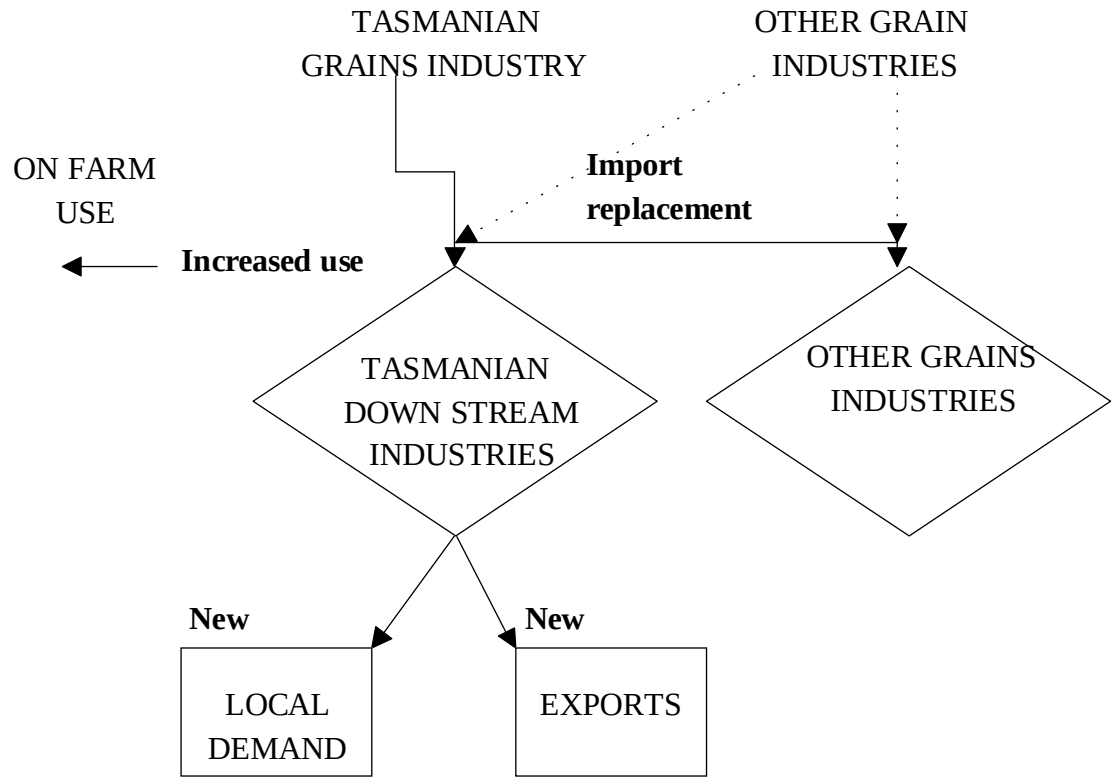
Directional Alternatives

The directional alternatives associated with the 'big push' and 'small is beautiful' approaches are set out in Table 3.1 and Figure 3.1. Essentially the two approaches between them provide four directions in which the industry may develop, namely increased on farm use, import replacement for existing value adding industries, new Tasmanian based value adding industries or export of bulk grains.

Table 3.2.1. Directional Options for the Tasmanian Grains Industry

Small is Beautiful Slow Roll Out Required: Flexibility to take advantage of opportunities as they arise	**Big Push** Rapid expansion required: Significant Capital Investment for economies of scale and to overcome infrastructure constraints
'**On farm**' use of grains and legumes	
Import replacement (existing value added industries)	
Supply new domestic value adding industries (including those value adding industries with export potential)	Significant **value adding** industries with **export potential**
Export small quantities of grains to value adding industries elsewhere	Significant volume **bulk grain exports** to the mainland and overseas

Figure 3.2.1. Directional Options for the Tasmanian Grains Industry

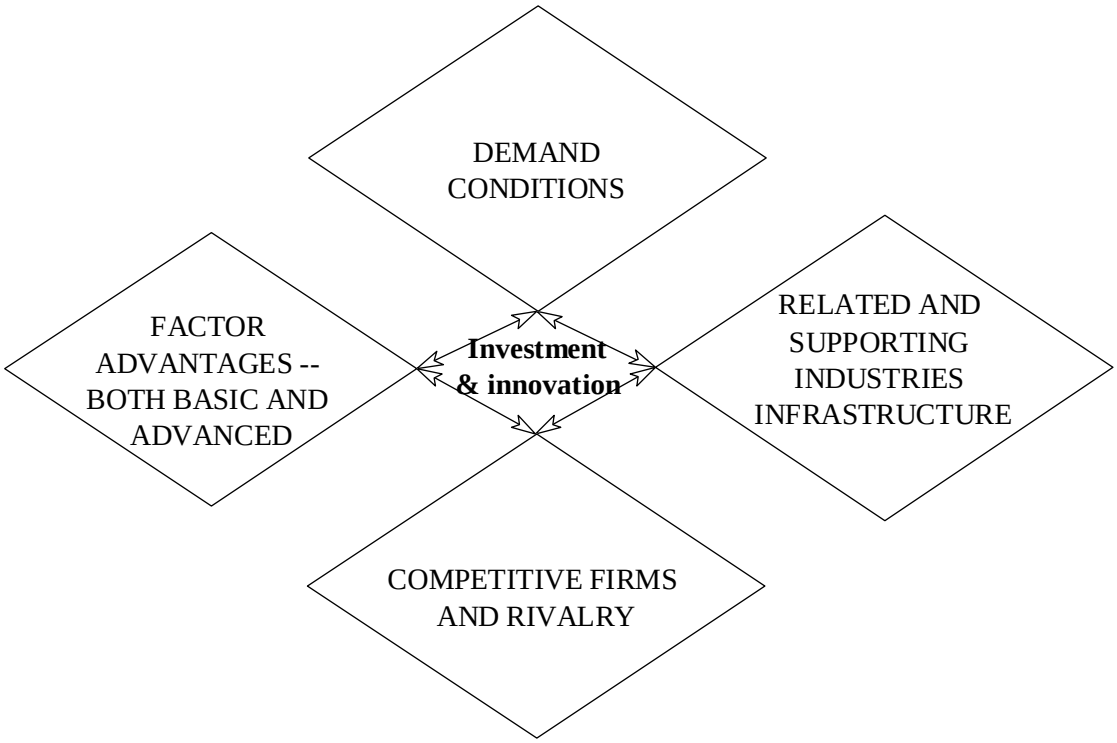


3.3 Porter's Theory of Competitive Advantage

In assessing Tasmanian export and import replacement opportunities, Felmingham and Attwater chose to adopt the competitive advantage model of Porter (1990) , whilst rejecting the 'collection of uncoordinated ideas' contained in the traditional literature.

Central to the Porter approach is the identification of local or national attributes which together may provide a nation, a region or an industry with a sustainable competitive advantage. These attributes constitute the 'Diamond of Forces' set out in Figure 3.3.1.

Figure 3.3.1. Porter's Diamond of Forces



With the element 'factor advantages' comes the critical concept of *advanced factor advantages*. The argument is that it will be very hard, if not impossible, to maintain a competitive advantage if that advantage relies solely on raw materials, natural resources or unskilled labour. Innovation, investment and the development of human resources are essential for a nation, or an industry to flourish. Indeed this 'second stage' development of factors may successfully overcome what appear to be quite serious deficiencies in basic factor endowments.

The second element that Porter argues will have a powerful influence on development is demand conditions and in particular, the quality of local, or domestic demand. An industry will develop more easily if sophisticated local demand exists, particularly if this type of potential demand can be identified elsewhere, and fostered. In contrast, an industry will find it hard to develop from a home base which lacks sophistication and which fails to provide the initial early support for an export-orientated industry.

The third element is that there should be an industry network of related and supporting industries which operate within a supportive infrastructure so that the burden of development does not fall heavily on a new industry. Often, infrastructure is defined purely as those physical elements of production an industry needs to have in place. In this Report a wider definition is used so that it incorporates the mechanisms that allow producers and buyers to make a market; to provide and react to market signals. It incorporates therefore arrangements that allow the transfer of information and which, by reducing search costs, also reduce market imperfections.

The fourth element is the need for competition. Porter's argument builds logically on the third element; infrastructure. It is simply that local competition will provide the stimulus for developing businesses and industries to search for ways of keeping in front.

To Felmingham and Attwater the implications to be taken from the literature were,

* the need for sufficient basic factors to be available to make an initial entry to the industry feasible,

* access to world class production capabilities either through local development of methods or the importation and adaptation of overseas technology,

* development of differentiated products based on credible and sustainable characteristics,

* availability, or focussed development of, a local training and support base, for development of world-leading technology or unique production approach,

* exposure to world class competition without protection,

* selection of industries or activities for which there is a local cultural 'empathy' and

* development , where possible from an existing support base in related industries.

3.4. Vertical Relationships

As indicated above, the future prospects for a Tasmanian grain industry will depend on its ability to develop in one of a combination of four directions; exporting unprocessed grains, increased plantings for on farm use, replacing grains currently imported by value adding downstream industries within the State and supplying new value adding industries within the State.

Central to the last two is, of course the position of downstream industries and the extent to which they strengthen the prospects of the Tasmanian grain industry.

Currently the milling industry (flour, feed and by products) and downstream dependent or user industries such as poultry, pigs, beef and fishmeal and the brewing industry are large users of grains. Apart from brewing these industries rely on cereal imports. Of the imports wheat is by far the most important and what infrastructure there is at the moment has been developed to meet the discharge and storage needs for bulk wheat.

The relationship between grain imports, the maintenance and development of an infrastructure that will allow both import replacement and the export of Tasmanian grains is complex and made more so by the current debate about the future of the Wheat Freight Scheme, the level of support for imported wheat and the future configuration of storage and handling facilities for imported grains.

The existence of significant established downstream industries using imported grains will, under normal circumstances, offer the opportunity for import replacement, which one might expect to be enhanced if the Wheat Freight Scheme was terminated or the level of support significantly reduced. However, there is every reason, without further study, of accepting the millers' proposition that not only would the milling industry collapse if the Tasmanian Wheat Freight scheme was terminated or support reduced, but that this would also seriously affect the industries which in turn rely on the products and by products of the milling industry. Their argument is that the importation of milled products by container would not provide a basis for continuing industries based on processed feed.

In part, the arguments stem from the acknowledged importance of wheat to the Tasmanian milling and stockfeed industry as a whole and the recognition by all that import replacement of wheat is not a significant option. It is understood that there is some disagreement about the extent to which downstream feed-using industries would be damaged if the local stockfeed industry failed. These arguments appear to relate to degree. There is little dispute that these industries will be harmed to some extent even though feed may be imported by container if the relative levels of support for each mode of transport across Bass Strait are changed.

If it is accepted that a significant part of the downstream grain using industries rely for their existence on the local milling industry, which in turn relies on the Wheat Freight Scheme, then it is a logical conclusion that import replacing opportunities for grains other than wheat will also be influenced by the continuation of the Wheat Freight scheme. Why the Tasmanian grains industry is not currently taking advantage if import replacing opportunities is another matter which will be discussed later.

3.5 Critical Issues for the Grains Industry

From the discussion of alternative development strategies in Section 3.2, the outline of the four elements in Porter in Section 3.3. and the discussion on the complex relationship between grain production, milling and other downstream industries in Section 3.4 the following questions are now posed as being critical when assessing the likelihood of successfully developing a grains industry in Tasmania.

1. Does the industry possess the basic factors required to make initial entry into the industry feasible? (Felmingham & Attwater)

2. What advanced factor advantages are there, at the present time, that suggest that the benefits from the basic factor endowments can be turned into a sustainable competitive advantage?

3. If the 'basic factor endowments' are weak, are the advanced factor advantages sufficiently powerful to nevertheless make for a successful industry?

4. Does significant local demand for the products of the industry exist and is this demand of the type that will subsequently provide the industry with the stimulus required to develop it into a sustainable export industry?

5. Does the industry have a suitable infrastructure including the existence of complementary and supporting industries and also a market structure in which signals can be readily exchanged between buyers and sellers?

6. If the infrastructure as defined is inadequate, or does not exist, how difficult and costly will it be to establish an infrastructure that will provide producers with the confidence needed to consider grains as a possible activity?

7. Are decisions being made with respect to the wheat freight scheme being taken in the wider context of the effects on the future prospects of a Tasmanian grains industry?

8. Is the industry likely to comprise a number of competitive firms so that the presence of other producers in close proximity provides a readily observable challenge to innovate, to seek efficiency gains and best practice and to develop new markets and new products?

Section Four - The Issues

4.1. Introduction

This Section examines the prospects for the Tasmanian Grains Industry in the light of the framework developed in Section 3.3 and the critical questions posed in Section 3.5. It does so in general terms though reference is made to particular crops and market opportunities. Subsequently Section Five deals with the future prospects for Barley, Section Six considers import replacement opportunities for other cereals and Section Seven discusses the longer range possibilities for grains and legumes including the development of new value adding industries.

Many have expressed views about the opportunities that exist in Tasmania for particular crops and the benefits that an increase in the practice of growing grains and grain legumes could bring to Tasmania.

Participants at the Workshop organised at Mount Pleasant by the Tasmanian Committee of the Grains Research and Development Corporation in October 1991 suggested a number of profitable crop opportunities might exist, including opportunities for grain legumes.

4.2 Basic Factor Advantages

It was once almost axiomatic that basic factor advantages were required if a sustainable industry was to develop. Such basic factor advantages in primary industry will include those natural and environmental resources that are likely to lead to the development of an industry because the benefits to farmers are so clear cut that specific development strategies are not required in the early stages.

Basic factor advantages identified by the Mount Pleasant Workshop were,

productive capability
cool climatic conditions
capacity to row a wide range of crops
a clean environment
isolation and
Bass Strait as a natural barrier to imports

Presumably, it was some of these basic factor advantages that led to the development of the Tasmanian wheat industry in the first half of the nineteenth century. In general terms primary industries do emerge in some form whenever farmers recognise that a market opportunity exists. Where an industry does not emerge it is likely to be either because basic factor advantages do not exist, or, and this is less likely, that local producers have not appreciated the opportunities that do exist.

The fact that nearly 200 years after settlement Tasmania produces only a minute proportion of Australian grains and is a major net importer of grains suggests that it may not possess the factor advantages required for a major grains industry.

This is not to say that the Tasmanian industry does not also have some basic natural advantages. The climatic conditions and long hours of daylight in the summer appear to favour Franklin barley grown in Tasmania. Opinions provided to date suggest that Franklin grown in warmer conditions is unlikely to provide the same malting capability as Franklin produced in Tasmania though such observations do not take into account further varietal improvements, nor the possibility of Franklin being grown in cooler parts of Victoria where climatic conditions are similar to Tasmania.

There is little dispute about the capacity of Tasmanian farmland and climatic conditions to grown cereals, though the cool climate works against the cultivation of hard wheat. Hence it is possible to make statements about the potential to grow more barley, wheat, oats, other cereals, grain legumes and oilseeds.

Bass Strait should be capable of providing the local grains industry with a measure of natural protection on the domestic (Tasmanian) market and indeed does so in a way that makes import substitution possible to varying degrees at the present time.

4.3 Advanced Factor Advantages

Advanced factor advantages were described in Section 3.4. They include the advantages that come from innovation and research, investment and the development of human resources which together offer an industry the possibility of becoming a market leader through best practice.

Other internal strengths and weaknesses identified by the Mount Pleasant Workshop were,

Strengths:

- Complementary cropping rotations
- Ready Access to Information (DPI, University, Agents and peers)
- Research and Development in the State

Weaknesses:

- Higher moisture content of grains
- Small domestic market
- Small acreages and subsequent product variability
- Competition from other crops
- Few dedicated grain growers, with most being opportunistic
- Seasonal variation in production and quality
- Unsuitable wheat for milling
- The diversity (small scale) of local enterprises

The relevant point, of course, is whether such crops can be grown profitably vis a vis alternative land uses and in general the answer has been, with specific exceptions, that they cannot.

The two principal elements that suggest Tasmania does not have an advanced factor advantage in grain production are,

(i) the relative gross margins of grains and field legumes compared with other alternative land uses, and

(ii) Bass Strait and the cost disadvantage it imposes on a potential export industry.

It should be noted that Bass Strait was put forward as one of the strengths of Tasmania at the Workshop. But before import substitution is feasible, local grains need to be not only a viable option for local producers at import parity price levels but they must also offer gross margins that are sufficiently high for farmers to include them in their overall product plan.

Tables 4.3.1 and 4.3.2 set out estimates of gross margins and enterprise contributions per hectare for cereals and a range of other farming activities in parts of Tasmania prepared by the Agricultural Economics Section of the Department of Primary Industry and Fisheries for 1992-93.

Table 4.3.1. Gross Margin and Enterprise Contribution of Selected Crops 1992-93 Northern Tasmania

Crop	Gross Margin $/hectare	Enterprise Contribution# $/hectare
Malting Barley -Franklin* - dryland	235	74
Malting Barley - Franklin* - irrigated	335	96
Lupins - dryland	215	90
Oats - spring sown	137	-14
Peas - green irrigated	566	265
Poppies - dryland	963	827
Potatoes (Russets) - processing	3545	2802
Triticale	215	88
Wheat - longbow	294	167

* based on $180 per tonne

enterprise contribution = gross margin-allocated overhead costs
Source: Department of Primary Industry and Fisheries Tasmania Cash Crop Enterprise Budgets Northern Tasmania 1992-93 (December 1992)

Table 4.3.2. Gross Margin and Enterprise Contribution of Selected Crops 1992-93 High Rainfall Farming Districts North West Region

Crop	Gross Margin $/hectare	Enterprise Contribution $/hectare
Wheat	420	226
Malting Barley*	309	140
Brussels Sprouts	3391	1681
Onions	1514	786
Peas - green	922	539
Poppies	1710	1253
Potatoes (Russets) - processing	4213	2550
Broad Beans	935	676
Green Beans	1117	167

* based on $185 per tonne

enterprise contribution = gross margin-allocated overhead costs
Source: Department of Primary Industry and Fisheries Tasmania *Cash Crop Enterprise Budgets High Rainfall Farming Districts North West Region 1992-93* (November 1992)

In both the Northern Tasmania and High Rainfall Farming Districts, North West Region the gross margins and enterprise contributions of the grains are shown to be very much lower than the equivalent calculations for major vegetable crops such as potatoes for processing and green peas on the assumptions used for the DPI exercise.

A critical assumption relates to the price of the various crops. Thus the gross margin of $235 per hectare recorded in Table 4.3.1 for Franklin malting barley is based on a price of $180 per tonne. On a price of $170 per tonne this falls to $187 per hectare, but on a price of $200 per hectare would rise to $283 per tonne.

A simple comparison of gross margins and enterprise contributions of this type may understate the usefulness of a crop since it ignores the part a grain can play in a rotation or a crop sequence firstly, because in such circumstances it needs properly to be compared with crops or land uses that play a similar role and secondly, because it may ignore the positive rotational effects in cleaning the ground and pest or disease control.

Another element is that many of the high return crops grown in the State are also high risk crops which may require investment of $2,000 to $4,000 per hectare before any return is achieved. It has been argued that if the risk of losing such a crop is high, a sound risk management strategy may be to grow a lower value and lower risk crop.

Notwithstanding these factors, a comparison of gross margins of alternative, competing activities, still provides an initial indication of whether a new industry is likely to have a factor advantage.

It should be clear from the discussion so far that whilst a basic factor advantage is likely to be important, particularly in the early stages, the long term survival of an industry does not depend on the existence of a basic factor advantage of the type described in this Section. This is so because a basic factor advantage is neither a sufficient nor a necessary condition for success. That it is not a sufficient condition will be apparent from the Porter type framework for sustainable competitive advantage set out in Section 3.3 including the need for advanced factor advantages.

What may not be so apparent is the notion that whilst a factor advantage is important, particularly in the early stages of developing an industry, it may not be absolutely essential *provided other elements exist to compensate for its lack*. There are many examples of successful industrial developments where the basic resource endowment is poor, but industries have nevertheless developed, through innovation and investment in both human and non human resources.

Nevertheless, ultimately, the survival of an industry will come down to the evidence from indicators of the type already mentioned; namely that a particular crop will be both viable and an attractive alternative to other farming activities or uses of available resources.

Thus whilst the lack of conclusive evidence in the early stages of the development of an industry may cast doubts on whether a factor advantage exists, this does not mean that the industry will not be able to meet these conditions as other elements fall into place. Given the limited comfort supporters of a Tasmanian grain industry can find from an examination of factor advantages, the question as to whether these other elements are likely to fall into place becomes critical.

One area where Tasmania has the potential to benefit is from its plant breeding research. Few would dispute the status of Tasmanian plant breeding research, nor deny the success associated with a number of varietal developments, with Franklin barley as a noteworthy contemporary example. Whatever the prospects for Tasmanian development of an industry based on Tasmanian plant breeding research, a detached observer would consider that Tasmanian plant breeding ought to be able to survive as an industry in its own right.

The question is whether high quality successful research will confer significant benefits on a Tasmanian grains industry. There is no clear cut answer to this question. Certainly research conducted within Tasmania is more likely to discover and develop varieties suited to Tasmanian conditions, and there is always the possibility that such varieties will not only be superior performers to other varieties in other places, but that they are also superior performers to the same variety grown in other areas.

A more pessimistic view is that the benefits that a successful new variety confers on the local area are likely to be small and short lived as the others acquire the variety and as new varieties are developed.

4.4 Local Demand and Potential Demand

The second important element in making for a sustainable industry is 'demand conditions'. Here the question posed was,

> 'Does significant local demand for the products of the industry exist and is this demand of the type that will subsequently provide the industry with the stimulus designed to develop as a sustainable export industry?'

The concept calls for the need to be able to identify relatively sophisticated local demand, or at least demand of a type that fosters industry development so that it can provide industrial products to meet the needs of export markets.

Here the position is relatively promising in the sense that local demand for various grains does exist amongst downstream processing industries and that import replacement opportunities and new product opportunities have been and will continue to be identified. However, the majority of these do not appear to be particularly sophisticated, or capable, by their quality, of providing the base for export industries which will secure market niches for themselves and, thereby, provide sustainable opportunities for the grain industry. Beer and Tasmanian produced whisky are two grain using industries which may have some limited export potential in the medium term, with much longer term prospects for fish meal and vegetable oils based on locally crushed and locally produced oilseeds.

Demand for bulk exports of unprocessed Franklin Malting Barley do not meet the Porter demand conditions specified above, though there are indications of the potential for local demand for malting barley to increase. The signals provided by the bulk exports are mixed at the present time. On the one hand they do little to indicate that the bulk product is likely to find an assured place as a small supplier in a large, volatile international market since the benefits of the product are likely, ultimately, to depend on the cost advantages it can offer to buyers rather than a marketable intrinsic quality that will provide it with a premium in excess of its productivity superiority. On the other hand, the product appears to be sufficiently attractive, to provide Tasmanian growers with contracts for the next three years and this will at least allow an opportunity to develop the product and to assess its future as effectively as if local sophisticated demand of the Porter type existed.

In some ways at the time of writing the 'local demand' element is less promising than it was. The closure of the Wander manufacturing plant led to the (temporary) closure of the Joe Whites Maltings at Quoiba leaving the Cascade maltings at South Hobart as the only producer of malted barley in the State thereby, at least temporarily, damaging the physical infrastructure. The closure of the Sanitarium health foods plant in Hobart also reduces potential future local demand for grains.

A potential danger, is the possible adverse effect on local demand from the restructuring, reduction or withdrawal of the Tasmanian Wheat Freight Scheme as indicated in Section 4. The direct importation of milled product might lead to the collapse of the Tasmanian milling industry. This in turn would remove the potential local demand for grains and field legumes for processing and, insofar as it adversely affected the downstream feed-using industries, it would also reduce the potential for selling unprocessed grains and field legumes directly to these industries.

4.5 Infrastructure

The third 'Porter' element was the existence of 'related and supporting industries'? This led in Section 3.5 to the question being posed,

> 'Does the industry have a suitable infrastructure including not only the existence of complementary and supporting industries but also a market structure in which signals can be readily exchanged between buyers and sellers?'

It is considered that this element is not only critical, but the area where a Tasmanian grains industry is at its weakest.

Two components falling with this element are of particular concern; deficiencies in physical infrastructure and an immature market culture. The weaknesses in the infrastructure are referred to in this Section and problems associated with the market culture are considered in Section 4.6

'Poor Marketing' and 'High Transport Costs' were identified as weaknesses by the Mount Pleasant Workshop.

The grain industry currently lacks the physical infrastructure either for a significant export bulk grains industry, or for the development of local value adding industries and the following infrastructure weaknesses have been noted,

(i) *lack of bulk loading and limited bulk storage facilities to support the export of bulk grains,*

Tasmania currently does not possess specialised bulk loading facilities for grain, unlike the mainland states. It was necessary to use an APPM woodchip loader in the 1993 season and the subsequent withdrawal of that facility created a problem for the industry of obtaining an alternative and satisfactory loader for future exports.

Storage is somewhat less of a problem and likely to be improved further if bulk storage for imported wheat is concentrated in Devonport, or Devonport and Hobart in the future enabling the utilisation of TGEB's Launceston silos for bulk grain storage. Failure to free up the Launceston silos will mean that bulk barley exports will again need to be held in storage sheds whilst awaiting loading. Such storage arrangements do not constitute a long term solution because of plans by the Launceston City Council to redevelop the area.

(ii) *limited drying and cleaning facilities to support the export of bulk barley*

The need to dry barley taken into storage was met during the past season by a farmer-owned portable dryer, operated adjacent to storage. Given the short notice, the 'solution' to the drying problem can be considered remarkably successful. Some rather more substantial arrangement is likely to be required in the future if the quantities passing through bulk grain storage are increase significantly.

Cleaning barley offers the opportunity to make optimal use of the barley and to separate malting barley that reaches export specifications from barley that is more appropriately consigned to stock feed. The terms of the proposed contract for malting barley shipped to

Western Australia to Kirin impose a 1 per cent penalty for every 1 per cent by which barley falls outside the quality specifications provide a powerful reason for using a cleaner to assist with quality control.

(iii) *high loading costs associated with bulk grain exports*

The need for additional microeconomic reform of the waterfront has been a matter of concern to Tasmanian farmers in recent times. An illustration of the costs of the existing system is illustrated by considering the costs of obtaining waterfront labour when shipping barley in 1993. Exhibit 4.1 reproduces an invoice from National Stevedores Tasmania to the TGEB for the cost of hiring 1 WWF Sweeper for 48 hours during the loading of MV "Nand Nidhi" at a cost of $3,208. It is not suggested that this represents a direct payment to the workers concerned for the time spent on the job.

Exhibit 4.5.1. Invoice for Stevedoring Work for Loading Bulk Grain at Bell Bay: May 1993 on the "Nand Nidhi"

National Stevedores Tasmania Pty. Limited
STEVEDORING CONTRACTORS
A.C.N. 009 422 149
60 MARINE TERRACE, BURNIE, TASMANIA. 7320. Postal Address: P.O. Box 160, BURNIE, TAS, 7320.

TASMANIAN GRAIN ELEVATORS BOARD,
PO BOX 604,
LAUNCESTON 7250.

TELEPHONE:
National (004) 31 2133
International 61 04 31 2133
TELEX: NTAL AA 59138
FAX: (004) 31 2248

1st June, 1993.

1391913

MV 'NAND NIDHI' AT BOARD OF BELL BAY 26th L 30th May 1993

20 MEN OF ANY SORTS.

29/5/93	0000-0600	7-00	1	7-00	$1-18.03	168.24	
	0600-0800	1-00	1	1-00	68-82.04	56.72	
	0800-1400	7-00	1	7-00	$1-18.03	168.24	
	1400-1500	1-00	1	1-00	68-82.04	56.72	
	1500-2200	7-00	1	7-00	$1-18.03	168.24	
	2200-2400	1-00	1	1-00	68-82.04	56.72	
30/5/93	0000-0800	7-00	1	7-00	60-85.03	420.10	
	0800-0800	1-00	1	1-00	77-79.05	77.14	
	0800-1800	7-00	1	7-00	60-85.03	420.10	
	1800-1600	1-00	1	1-00	77-79.05	77.14	
	1600-2300	7-00	1	7-00	60-85.03	420.10	
	2300-2400	1-00	1	1-00	77-79.05	77.14	
				48hrs			2376.91
	Travel time		$.5 excl. hrs		$7-74.91		97.57
	Meal Monies			. 4	10-95.00		43.80
							2517.28
	Supervision $2517.18				10%		191.73
							$2709.00

Table 4.5.3 provides comparative information relating to this loading and to a subsequent loading in September 1993.

Table 4.5.3. Stevedoring Costs Associated With Bulk Grain Loading at Launceston 1993

Vessel	Dates	Total Hours*	0.00 - 08.00	08.00- 17.00	17.00- 24.00	Total Cost# $
Nand Nidhi	29-30 May	48	16	18	14	3208
	6-9 Sept	38	-	38	-	2017

* excludes travel time in each case Source: TGEB
# includes travel costs, meal monies and supervision @ 10%

A quotation received in August for the loading of three vessels of 6,500 tonnes was for $1.63 'loaded', with provision for additional costs if incurred for a variety of specified reasons including 'costs of delays beyond stevedores control after labour has been engaged.'

It must be emphasised that these comments relate in no way to the quality of the work performed whilst loading vessels, but rather are assigned to the level of costs that are encountered by an industry that is seeking to develop.

(iv) *concentrated, and limited, malting capacity in the State for producing malted barley*
The deficiencies in the infrastructure supporting the export of bulk barley and the high costs associated with the loading and shipping of bulk grains is one reason why it has been suggested the industry may do better to concentrate on meeting the need of local downstream value adding industries, whether for meeting local or export demand.

However, the infrastructure of the local industry presents a potential constraint to developing the industry in this direction. When Joe White's malting at Quoiba closed, the Cascade Brewery Company Pty Ltd plant at South Hobart wasthe only malting operating in the State and malted for its own purposes and for Tasmanian Breweries the owners of the northern-based Boags brewery. This malting had substantial surplus capacity (estimated to be in the region of 5,000 to 6,000 tonnes per year) but it appeared to be viewed by its managers as an integral part of the Cascade brewing operation rather than as a separate cost centre with a potential to adding to profitability of the company's operations in its own right.

As indicated in Section Five, which concentrates on malting barley, it appears likely that Cascade may increase the use it makes of its malting for its own purposes if the product line produced at South Hobart is extended.

Fundamentally, however, the South Hobart malting would be an inadequate base from which to develop a significantly larger Tasmanian barley industry focussed on local value adding industries. Consequently, Hart and Stewart (July 1993) raise the question of the feasibility of reopening and upgrading the Joe White malt plant at Quoiba, but indicate that to do this in such a way as to increase grain processing capacity from 8000 tonnes to 20000 tonnes would require expenditure of between A$2 million and A$3 million. It is also suggested that a new

processing facility with a 20000 tonne capacity would require capital expenditure of between A$7 million and A$10 million. There are no indications at this stage that the company is convinced that sufficient local demand exists to warrant such an expenditure, nor that barley can be malted in Tasmania and exported to mainland or foreign users at a competitive price. In short the industry may face as many inherent problems in establishing an appropriate infrastructure for a domestic industry as it is acknowledged to face as it seeks to develop bulk exports.

(v) *lack of an oilseed crusher as a critical limitation on the development of an oilseed industry*

There is general agreement that despite promising conditions for the production of oilseeds within the State, that the industry will not be viable without establishing a crusher in Tasmania. The possibility of overcoming this problem is discussed in Section 6.7.

(v) *ownership and control of a significant part of the infrastructure by the Tasmanian Government*

The Tasmanian Grain Elevator Board operates as a Government Statutory Authority within the Department of Primary Industry, Fisheries and Energy. Its principal assets are silos at Hobart, Launceston and Devonport which are used for the receival, storage and delivery of bulk wheat imports from the mainland.

The current importance of these facilities for the milling industry, and the potential importance of their redevelopment to the Tasmanian grains industry has already been referred to. The point at issue here, however, is that the ownership and control of these facilities lie with the Tasmanian Government. Although the Tasmanian Grain Elevator Board operates these facilities, and under present management has sought to run a commercial operation, it has nevertheless been required to conduct its operations within the Government's financial and political parameters.

It is noted that research currently underway, or proposed, by the Department of Primary Industry into the possible implications of a change of arrangements surrounding the operation of the Tasmanian Wheat Freight Scheme contains a list of issues including,

* Tasmanian Grain Elevators Board future operations including scope for privatisation

and amongst its terms of reference,

'5. Identify possible changes in markets or the nature of Tasmanian wheat users that might make capital investment in silos redundant.'

It is not necessary to comment on these specific issues at this stage. The fact that the subjects are identified as matters in which Government is unclear should be sufficient to sound a warning to the industry the potential weakness which exists where Government is involved and where Government lacks a sense of direction.

4.6 The Market Culture

The second major weakness of the grains industry in this general area of industry structure relates to the immaturity of the market culture. It has been argued, particularly by processors, that import replacement opportunities are not always taken up by downstream industries because the local grains industry is not sufficiently well organised to meet their demands. Anecdotal evidence relates to farmers' expectations of obtaining more than import parity price, uncertainty about whether supplies will be available in the required quantities from local farmers and an alleged unwillingness of some producers to honour contracts if a better opportunity arises. In this situation it is claimed that processors would prefer to place orders interstate where they can be certain of obtaining the quantities they require which accord with their specifications.

That there are 'few dedicated grain growers' and that 'most are opportunistic' was suggested at the Mount Pleasant Workshop and so too was a 'poorer than desirable liaison between growers and users'.

Tasmanian farmers thus stand at a severe disadvantage compared with their mainland counterparts who come from a grain growing culture. The very smallness of the industry today means that the farmers may lack the essential information to 'make a market' and lack the experience in knowing how to respond to market signals.

Tasmania lacks a specialist grains merchant capable of matching potential demand and potential supply and of setting out the conditions under which a market can operate to the satisfaction and benefit of both producers and downstream users. In recent times an attempt to make a market and to act as a specialist grains merchant has been undertaken personally for the Tasmanian Grains Elevator Board by its Manager. The success of such operations has only served to underline the need for the function to be fulfilled by a specialist organisation.

4.7 Future Role of the TGEB

Inevitably, this raises the question of whether a government instrumentality is the appropriate organisation for undertaking this function. In addition, whilst the current operations may, or may not, have worked to the benefit of the industry, there must always be concern about the overriding objectives to which a government-owned organisation may be required to conform. There is also the underlying concern of whether the organisation's capacity to perform satisfactorily may be a function of whomever the manager happens to be at a particular time and of whether the government is well placed to ensure that the operation is managed efficiently in the longer term. The fact that the possibility, perhaps he likelihood, of privatisation of TGEB as an 'issue' has previously been referred to in Section 4.6.

Such a specialist grains merchant function is probably not well handled in farmers' or in the industry's interests by a single processing organisation, nor by farmers' co-operative, which would almost certainly have difficulty in operating a collective business without raising questions about potential breaches of the Trade Practices Act.

It may be necessary to distinguish between the use and ownership of the bulk storage and handling facilities at Devonport, Hobart and Launceston and the assets they constitute on the one hand and the wider function of acting as a grain merchant on the other. It appears that the TGEB has operated in the latter capacity partly because of its control of bulk storage facilities, but more particularly because of an awareness of market opportunities and an unfulfilled need in Tasmania. Clearly, the TGEB was better placed than any other organisation to handle bulk grain exports and the interrelationship between exports and domestic use of grains has made the extension of its activities into arranging domestic sales a logical one.

From the Tasmanian Government's point of view an element in the debate is its desire to improve its overall budgetary position and to engage in asset sales as a means of retiring State Debt. In such a situation there is always a possible conflict between the financial benefits from such a sale and the wider public interest if infrastructure passes to the control of a private operator.

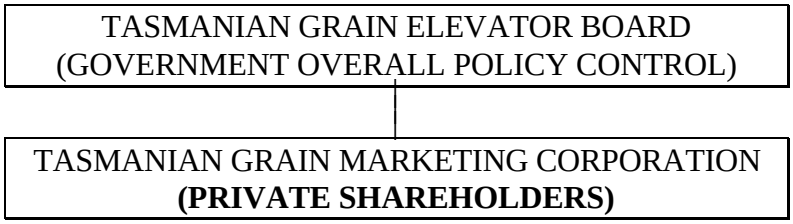
The view has been expressed that there is a danger in that whilst, on the one hand, caution should be exercised to ensure that Government investment in the industry is not excessive, there are also dangers that attempts to develop the industry privately may be fragmented and uncoordinated. The prospect of different groups of growers or commercial operations owning, operating, or taking responsibility for barley cleaning, drying, storage and loading increases the potential not only for waste, but for system breakdown. It is in the malting barley trade that the potential for such a breakdown appears greatest at the present time. Of particular concern is the need to exercise quality control in an efficient and cost effective manner since the penalties for not meeting specifications are high. Inevitably, the possibility of conflict arises when a shipping organisation is under pressure to meet both quantity and quality specifications in a contract, because of a temptation to trade off the latter for the former.

The implications of this discussion are that unified control and central organisation of bulk grain exports may be desirable in the immediate future to reduce the risks of failure. On the other hand, the view is held strongly that if such control is to be exercised by the TGEB this must not be at a cost of government financial direction, nor as an additional cost to Tasmanian taxpayers. One solution may be for a structure that vests control in a single organisation, which is corporatised and therefore required to operate without any reliance on government support. It is axiomatic that government control would be minimal in such circumstances.

There are a number of models that retain a government link and yet allow corporatisation so that the commercial activities can be pursued without direct government involvement. For example one model might retain TGEB as a government appointed board responsible for broad policy issues, but with the greater part of its commercial activities undertaken by an associated private company, with shareholders and funds coming from various sectors of the industry.

An alternative would be for the Government to negotiate the sale of the TGEB to a private organisation whilst ensuring that the new organisation was structured in such a way as to represent the wider interests of the industry and the Tasmanian people.

Figure 4.7.1. Proposed Corporate Structure of the TGEB



The functions of the Corporation might be,

(i) to operate bulk storage and associated facilities for the TGEB,

(ii) to trade in grains on its own account, and

(iii) to undertake such additional activities its directors and shareholders considered appropriate.

The Corporation would also be the owner of additional assets and could be expected to buy the assets of TGEB either at the outset, or over a period to be determined.

4.8 Competitive Industries

The final element considered necessary for a sustainable competitive advantage is the existence of competitive industries. In Section 3.5 this resulted in the question being posed,

'Is the industry likely to comprise a number of competitive firms so that the presence of other producers in close proximity provides a readily observable challenge to innovate, to seek efficiency gains and best practice and to develop new markets and new products?'

This element is probably of less importance than the infrastructure element discussed in the previous Section. Textbook 'competition' is a feature of grains industries over the world. There is relatively little that the individual farmer can do to influence price, but much in terms of quality controls, cost minimisation and determination of product mix. It is sometimes said that in such competitive industries there is little incentive for innovation because others quickly learn without incurring the initial research costs. As discussed previously, one of the benefits of a strong research establishment in Tasmania is that farmers have relatively good access to relevant research.

The competitive element may be important for the development of the downstream industries. For example the salmonid industry which has a potential import replacement potential is said to benefit from a combination of co-operation on some matters and healthy competition on others.

4.9 Conclusion

Overall, the Porter type framework provides more grounds for pessimism than optimism, particularly when the elements of basic factor advantage, the limited sophisticated local demand at the present time and in particular the lack of infrastructure and the immature market culture are taken into consideration. It would be easy, therefore, to dismiss the grains industry on this basis.

However, there are other factors that cannot be lightly set aside, provided some or all of the weaknesses that have been identified can be addressed. Two positive factors are the potential for import replacement, which for the producers of some crops may be the first stepping stone to building a larger industry, particularly where that import replacement will assist a downstream industry with a promising future. The second positive factor has been the ability that has been demonstrated to win and hold a small bulk grains export market for malting barley for at least a useful period of maybe four years.

The next three years will be a useful period that may be sufficient to provide the industry with clear indications about its prospects for development. That time will provide a challenge to operate a bulk export trade at a modest level and to overcome the not insignificant challenges that such a trade presents. The period will provide time to examine prospects for future import replacement and export opportunities for the identified infrastructure and market problems to be overcome. It is a period in which there may be some changes in significant economic parameters such as the Wheat Freight Scheme, the Tasmanian Freight Equalisation Scheme and the rate of progress in the area of microeconomic reform at wharf and on the water.

It will also provide a better indication of how much the profitability of alternative dryland farming activities, notably wool, are likely to improve and whether vegetable production in wetter and irrigated areas is able to maintain its current position in the Tasmanian land use hierarchy.

Although references have been made to particular groups and their prospects in Section A, especially malting barley, a more detailed review of the prospects of particular crops is undertaken in Section B.

SECTION B - SPECIFIC CROPS

Section Five - Malting Barley

5.1 Production Capabilities

The Porter model provides the framework in assessing the long-run potential for grains, grain legumes, and oilseeds. Specifically, directional options are explored within Porter's diamond of forces for different grains.

An important addition to published information about the potential for Franklin Barley will come with the release of the profile produced in the Department of Primary Industry, "New Opportunity Assessment" by Hart and Stuart. In writing this Report, access to the Draft Report was granted together with permission to refer to it.

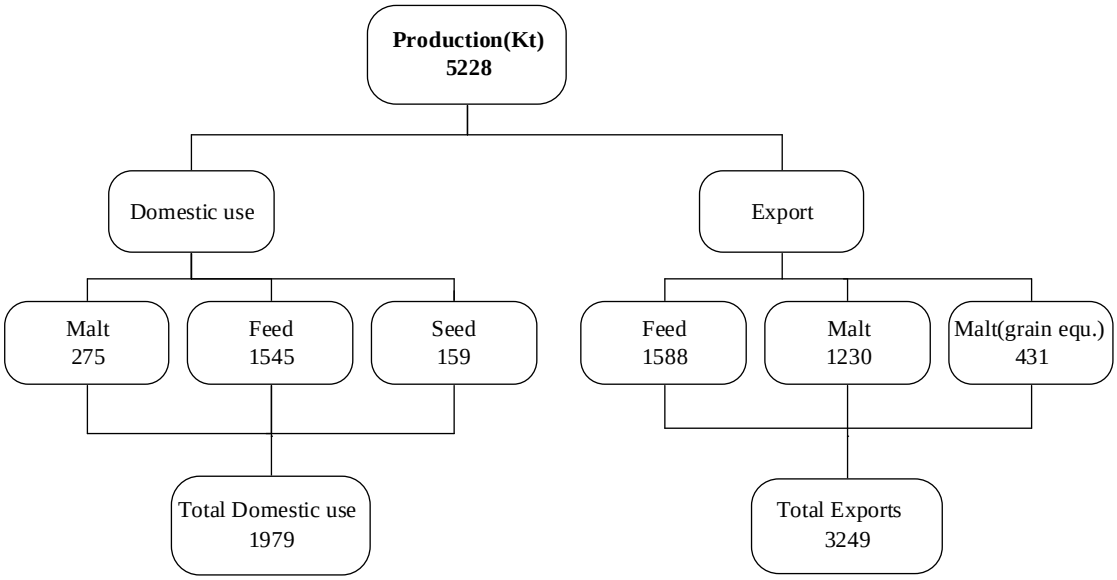
That Report not only provides a great deal of relevant factual information, but also identifies areas where more work is needed before a definitive assessment of the potential of Frankin Barley can be made. Amongst the areas where further work is identified is the need for research to identify demand for small quantities of Franklin Barley on the mainland and elsewhere.

The first grain crop harvested in Australia came from 3.24 hectares of barley planted at Farm Cove in 1788. This was perhaps more an accident because the seed wheat brought by the first fleet failed to germinate.

In the more recent past Australian barley had been successful as a malt export to Asian markets before being displaced by the Harrington variety of barley grown in Canada. The lesson from this is that the international market is extremely receptive to new varieties that offer users economic benefits and therein may lie the new opportunities for Tasmania.

The 1993/94 forecast of Australian supply and demand of Barley can be seen from the following flowchart.

Figure 5.1.1. Supply and Disposal of Australian Barley 1993/94 ABARE Forecast



Source: ABARE

About 62 per cent of total Australian barley production is exported. Of the exports 51 per cent is malted barley. Of the barley used in Australia only about 14 per cent is malted.which breaks down to 14 per cent in the domestic market and 51 per cent for exports. The percentage devoted to malting barley is larger than in many other countries. For example, 20 per cent of barley production is used for malt in the European Community. There barley is used mainly as a winter feed.

Before 1992, Tasmania, with around 1 per cent of tAustralian production, consumed most locally produced grain prior to 1992. The barley market historically consisted of feed grain plus malting for two malt houses totalling around 23000 tonnes. Cascade Breweries in Hobart was the major client taking 6000 tonnes last year. It produces malt both for itself and for Tasmanian Breweries (Boags beer). Its average intake has declined since the late 1970s when it used 8500 tonnes. This decline may be explained, in part, due to social factors affecting drinking behaviour. The plant in Quoiba, NW Tasmania, operated by Joe White Maltings, took in an average of 5000 tonnes before its closure. In 1992 they took in 2600 tonnes which is to be shipped to their malt house in Victoria.

At the same time as local demand has declined in the past two years with the closure of the Joe White malting operation, there has been a rising export demand. The past two years has seen Tasmania export malt barley to Kirin (Australia) in quantities of around 8500 tonnes.

Most of the recent success in malt barley exports can be attributed to the development of the Franklin variety. Wayne Vertigan (DPI) cross-bred Triumph and Shannon to produce the Franklin variety in 1989. Franklin is particularly suited to Tasmanian conditions. It is characterised by high yields relative to the Proctor variety and has taken over 75 per cent of the total area in Tasmania devoted to barley production. It is resistant to the Barley Yellow Dwarf virus as well as powdery mildew. In addition, it produces high malting extract -- up to 2 to 5 per cent more malt extract relative to the average for Schooner grown in Western

Australia. Higher malt extract affords better diastatic power (DP) which means a better ability to convert starch into simple fermentable sugars. (Sixth Australian Barley Technical Symposium, September 1993)

DPI have translated the higher malt extract into beer production. Specifically, per tonne of malted barley, every 1 per cent extra malt extract translates into 300 additional litres of beer. This implies an average of 900 litres more beer able to be produced per tonne of malted barley. (Tasmanian Country, Friday 21 May 1993) However, it should be pointed out that malt constitutes around 3 per cent of the cost of beer (less taxes). Assuming a litre of pre-taxed beer costs A$1.30, and with the above malt extract figures a rough monetary value can be calculated. Additional production of 900 litres translates into a monetary value of around A$36 per tonne.

Franklin barley is marketed by the breeders agent Cultivaust Pty. Ltd. of South Australia. The variety is fast-becoming a favourite in other states, although currently it does not obtain as high a yield nor as high an extract as in Tasmania. This is particularly so in comparison with Western Australia but becomes more a matter of conjecture for Victoria where growing conditions and daylight hours approximate those of Tasmania.

The variety performs best in terms of yield if the land is fertilised and irrigated correctly. It is possible to obtain acceptable yields even on land with marginal soil and rainfall. However, it is doubtful that grain grown on such land would be of premium quality. In Australia, barley is generally included in two types of rotation, either as a stubble-sown, second, or occasionally third, crop in the long rotation, or as a first crop after a legume pasture ley in a short rotation and in Tasmania with vegetables or poppies.

Around 11344 hectares is devoted to all types of grain barley at the present time. Production could be looked at from a technical standpoint just to see what is the absolute maximum amount of barley Tasmania is capable of growing. The following table calculates hypothetical production.

Table 5.1.1. Hypothetical Production* -- 1992 figures -- Barley

Potential area to use	Area (hectares)	Yield estimate	Total production (tonnes)	Cumulative total production (tonnes)
Current Barley	11340	2.8	31790	31790
plus				
All Cereals for grain, less barley	11340	2.8	31790	63580
plus				
Hay - total	53660	2	107320	171404
plus				
Vegetables	14470	2	28940	200344
plus				
Sown pasture	826600	2	1653200	1853544

Source: ABS Cat. Nos. 7111.6 & 7114.6 * double cropping possible

The rationale for including sown pasture in the calculation is that some of it could be converted into back into cropland. There had been, until recently, an upward trend in grassland farming since the Great War, away from ploughed fields. This occurred even though total area of rural holdings has remained stable since World War I. However, it is not suggested that an annual production level of 1.85 million tonnes borders is possible, nor even if it was supposed that every piece of land would be used to produce barley every 10 years, that production of 185,000 tonnes was flikely. More reasonable estimates of potential land use place maximuml tonnage at around 50,000 to 60,000. However, the exercise illustrates the very important point that potential production is meaningless if other constraints apply. For Tasmania, boosting production of malting barley by an additional 20,000 tonnes beyond the current level, and exporting the additional production would be well beyond the capacity of the existing infrastructure. Increased irrigation is the focus of another study examining issues related to potential cropland expansion. The problem is to assess whether Franklin barley is really a niche product, with sustainable long-run potential for farmers, rather than the academic question of how much could be produced from a technical standpoint.

5.2 Bulk Exports

The recent market provided for Franklin barley by Kirin has been referred to on a number of occasions. Recent information is that a new agreement has been negotiated between TGEB and Kirin, for shipments of 21,000 tonnes a year for the next three years. The price to Kirin c.i.f. Fremantle is reported to be around $260 per tonne and the net farm gate price to Tasmanian growers is expected to be about $180 per tonne provided contract specifications with respect to quality are met. Thus the contract is estimated to be worth about $3.8 million at farm gate in 1994 or $4.4 million f.o.b. Tasmania.

The price of $260 f.o.b. Fremantle appears to be significantly higher than current international prices for premium malt barley; which currently stand at around $210 per tonne.

In part the explanation for the price differential is to be found in the benefit conferred to the beer maker by using barley with a higher malt extract. This has been estimated here to be, perhaps, in the order of $36 per tonne. If this is correct there still appears to be a disparity between the Fremantle c.i.f. price and the Tasmanian f.o.b. price adjusted for this benefit

Explanations for the success of the Tasmanian industry in being able to win, and hold, the Kirin order have ranged from its alleged capacity to improve the overall quality of the Western Australian supply, Kirin's desire to encourage alternative sources of supply and the suggestion that the use of Tasmanian barley will demonstrate to other barley producing areas in Australia the necessity to improve the quality of the delivered product. It is said that during the past decade Australian suppliers have fallen to the last five places as suppliers of premium malted barley to Kirin (Japan) as other suppliers have improved their exports. Significantly, the Tasmanian contract for 1993 provides for substantial penalties for failure to achieve quality specifications.

Franklin barley has two possible roles. Firstly, there is the Franklin barley grown in Tasmania, which *currently* meets no. 1 grade malting barley standard. Malting barley grown in the other Australian states is simply not as good at the present time. This is likely to

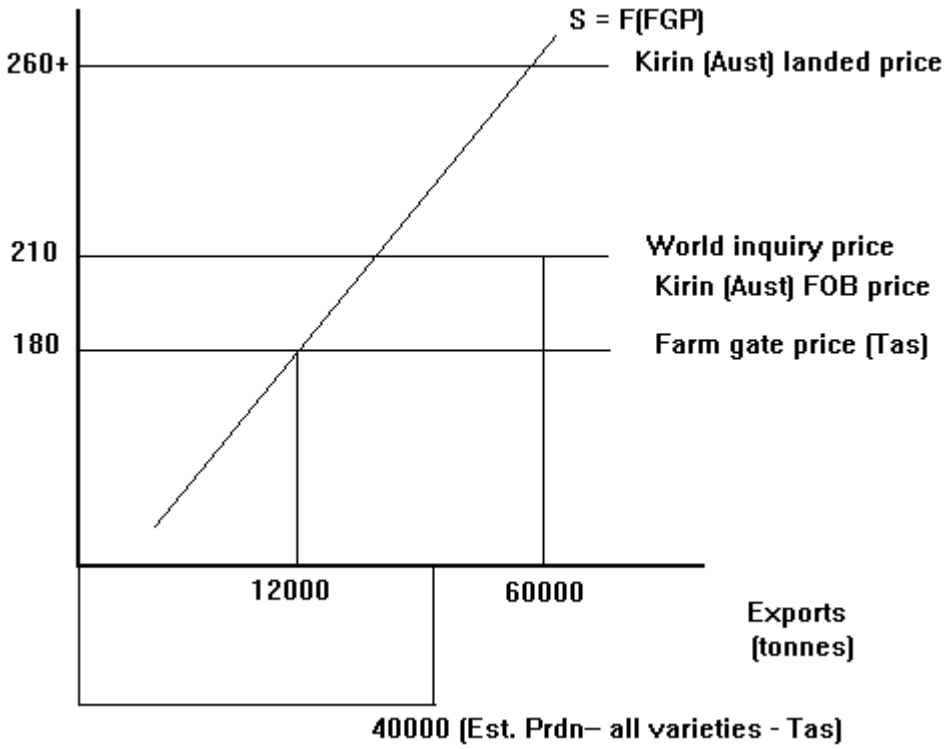
change within the next 4 to 5 years with research currently devoted to improvements in malting barley in mainland states. Simultaneously, there have been recent breakthroughs in genetic engineering of barley. Specifically it is now possible to genetically transform barley as announced by Professor Peter R. Shewry, University of Bristol at the sixth Australian Technical Symposium. This means that plant breeding will continue to modify barley so as to improve quality, yield, as well as agronomic performance. Professor Shewry believes that initial commercial application of the most recent developments could be possible within three years. Research sponsored by GRDC is concerned with investigating genetic manipulation of factors affecting malt quality in barley. (GRDC, Grains R & D Annual Report 1991-92) Use of Tasmanian Franklin malt barley in its malting operations can be seen as an interim measure by which Kirin (Australia) maintains its performance until lower cost mainland varieties improve.

The above argument is, of course the subject of much conjecture. It is not clear that export demand for Tasmanian-grown Franklin malt barley will cease in three years. Firstly it is possible that varieties grown here will continue to have an edge over varieties elsewhere in terms of yield, diastase, and malt quality. This depends crucially on a continued commitment by Government to fund research activities of Department of Primary Industry and Fisheries in this area. Indications are that there will continue to be a high value placed on premium malt barley in the world market. The Japanese market is interesting in that domestic malt barley sells for up to A$2000 per tonne. The high opportunity cost of land use in Japan accounts for the high price. Domestic breweries are required by law to buy at least 25% of the total from domestic sources, the rest being imported. With such a market, even the smallest edge on quality can make a difference.

Although beer consumption appears to be declining in Australia, it is growing in Asian countries. DPI report that an ABC programme in June 1993 indicated Chinese beer consumption was *growing* at a rate equal to *total* Australian consumption. Furthermore, at an ABARE Coarse Grains Outlook Conference in 1992, it was indicated that international demand for premium malt barley could *increase* in the order of 2 *million* tonnes over 8 years. (Hart and Stuart, July 1993)

The economic context in which the above events are taking place, may be understood from the following figure.

Figure 5.2.1. The Tasmanian Export Barley Market



The diagram is used for illustrative purposes. The vertical axis denotes price per tonne of Franklin barley whilst the horizontal axis represents its quantity. Tasmanian production represents a small proportion of the total international premium barley market, so quantity produced by growers has no effect on the price. It is determined by world factors. The diagram shows this situation by the fact that price lines for different scenarios are drawn as straight lines.

The upward-sloping line can be thought of as the opportunity cost of producing Franklin barley by growers. Initial quantities produced 'cost' less in terms of forgone alternative uses. This is because barley is a good cleaning crop, reducing diseases, pests, and weeds when sequenced with other more profitable crops such as vegetables. (DPI, New Opportunity Assessment: Franklin Barley, July 1993). So, there is little cost in foregone opportunity as some cereal grain would have to be grown to act as a break. However, costs in terms of foregone opportunities, rise the higher is production. This is because higher production of the Franklin barley (beyond that which is useful in crop-sequencing schemes) will take away land otherwise used for other more profitable crops. Thus, the price of producing Franklin barley has to rise if more production is to take place.

Noted above was the fact that the upward-sloping supply curve embodies costs associated with barley production. Should, for example, barley growing costs fall relative to other crops, more Franklin barley can be grown for a given price. If this happened it would be depicted by a rightward shift of the supply curve. Conversely, anything which caused costs of growing Franklin barley to rise relative to other crops would be shown as a leftward shift of the supply curve.

There are several bottlenecks in exporting grain which need to be addressed in order to ensure long-run competitiveness in the malt barley export market. Firstly, there is the lack of storage facilities necessary for any substantial increase in export quantities. Last year makeshift storage areas were used to overcome the deficiency but this will not be sufficient even for this year's contract for 21000 tonnes. Secondly, there are difficulties in loading grain onto ships for export. An example of the high costs associated with loading was discussed, *inter alia*, in section four. Thirdly there are inadequate drying facilities in the state. There is a minimum moisture requirement which is often unattainable under the natural conditions of Tasmania. At present the portable drier is only just able to cope with the present level of malt barley exports. Fourthly, cleaning facilities are needed to ensure that the barley meet the quality requirements for export and to allow the sale of the rejected barley for feed purposes.

The steepness of the supply curve in the figure above embodies the rising costs of bottlenecks in expanding Tasmanian Franklin malt barley export above its current level of 8600 tonnes per year. The question which needs to be addressed is if the cost of upgrading physical infrastructure is worth the risk. In other words, is a massive upgrading of grain export facilities all that is necessary for Tasmania to export Franklin malt barley on a large scale and on a sustainable basis? Alternatively would it be better to stay within a total production of 50 to 60 thousand tonnes per year, looking at the domestic market to fill in as the export market diminishes over time?

5.3 Import Replacement Opportunities

New import replacement opportunities can be identified for malted barley particularly by the brewing industry.

However, the closure of the Wander plant and the consequent closure of Joe Whites malting at Quoiba reduced the demand for the use of malted barley within Tasmania by perhaps 5,000 tonnes The closure of the Quoiba plant also had the effect, for a time, of leaving the malting owned by the Cascade Brewery Company as the only operational malting in Tasmania.

The demand for barley to meet the needs of the Cascade Brewery in Hobart and Boags Brewery in Launceston has been relatively stable with the malt for both breweries being provided from the Hobart plant with Cascade acting as the buyer for malted barley.

One significant change has been the replacement of the Proctor variety by Franklin by the breweries.

A more fundamental change that has the potential to have significant ramifications is the change in ownership of the Cascade brewery and the change in the structure of the Tasmanian brewing industry. Since the beginning of 1993 the Cascade Brewery has been operated by a joint venture company, Cascade Brewery Pty Ltd which is jointly owned by CUB and Tasmanian Breweries. Tasmanian Breweries has retained the marketing rights in Tasmania for Cascade brand beers for a 20 year period, but continues to own and operate Boags Brewery in Launceston.

One consequence of the change in ownership has been an increase in investment in the Cascade brewery in Hobart with the introduction of a can line. Of significance to Tasmanian barley growers has been the announcement of the intention to produce Vic Bitter in Tasmania at the Cascade brewery. Currently Vic Bitter may hold in the region of 15 per cent of the Tasmanian beer market and this suggests that local manufacture might increase the demand for local Franklin barley, by perhaps 1,000 tonnes or so.

An uncertain factor is the future of Boags brewery in Launceston. Currently the brewery is vigorously seeking to increase sales both in Tasmania and on the mainland. Whilst there is little prospect of overall consumption of beer increasing in Tasmania, indeed the overall consumption trend is downwards, any increase in mainland sales by Boags would generate further demand for Tasmanian barley.

The announcement that Joe Whites would reopen its maltinings at Quoiba and produce malt for Boags has removed one element of uncertainty in the industry. There now seems to be aboundant maliting capacity in the State in the medium term and with it an increase in opportunities for local value adding activities. Presumably the decision to reopen Joe Whites was taken after reaching the conclusion that throughput would be sufficient for its operations to be viable.

The other relevant question concerns the management objectives the Cascade Brewery Co. Pty. Ltd. are likely to follow with respect to the Hobart maltings. If this is perceived primarily as a service section for the brewery then full use may not be made of its potential, in the way that it might be operated, if managed as a profit centre in its own right.

Standards for malting barley at Cascade are roughly equivalent to those set by Kirin (Australia). On paper, Cascade specifications appear less stringent but, unlike Kirin, they have more direct control over quality. They contract directly with growers and store all grain on site. Current capacity is on the order of 13000 tonnes in 10 silos.

5.4 New Value-adding Opportunities

An obvious question is whether or not there is scope for malting barley before it is exported from Tasmania, thereby adding value to the product *within* the state. Malted barley sold for A$392 per tonne first quarter 1993 (ABARE, Crop Report, 4 May 1993) so the value added component is around A$177 per tonne. As indicated in subsection 5.3 Cascade Brewery Company is working on expanding its Tasmanian beer production and it appears unlikely to be interested in entering the competitive malted barley market. They have not entered this market since 1975. grain to Victoria costs only marginally less than grain shipped to, say, Japan. These factors have to be weighed against the cost of making the Quoiba plant operational

A new value-added opportunity which has arisen recently is the installation of a whisky distillery in Tasmania. It is understood that the owners hope to have production of around 5000 bottles per year within three years if these plans are successful. This will create some additional demand for malted barley within the state but the quantity is only very small -- around 20 to 30 tonnes per year.

5.5 Conclusions

Franklin barley is considered to provide the local grain industry with both opportunity and challenge. Natural conditions are favourable to the variety and the Kirin order provides the prospect of an unusual but worthwhile trial period in which to assess the longer run prospects both for bulk grain exports and local processing. During this period the industry will need to solve infrastructure problems and to develop a co-operative approach.

In the longer terms the survival of the industry will depend on those basic elements that were identified in Sections 3 and 4; the relative profitability of barley growing, the contribution it can make to farmers overall plans, the development of additional export markets for bulk sales and the emergence of local value adding downstream industries. The advantage that Tasmanian Franklin barley currently enjoys may be as short lived as the advantage conferred by the Kirin contract.

Whether Tasmanian Franklin barley is able to command a premium price will depend on varietal improvements in Tasmania and elsewhere. However, the advantages that Tasmania holds for barley growing must not be overlooked including the combination of long days and low temperatures during grain fill.

Section Six - Other Crops

6.1 Introduction

Section Five was devoted to malting barley for two reasons.

Firstly, it immediately presents a number of actual, or, at the very least, potential market opportunities. Whether these opportunities turn into significant sustainable developments, in time, remains to be seen. They nevertheless are opportunities that require immediate consideration by Tasmanian farmers since demand currently exists and decisions are required about whether such demand can be met profitably. Opportunities lost may disappear.

Secondly, the attempt to meet these market opportunities brings out the critical constraints that are likely to inhibit, not only the development of malting barley production, but the development of production of other crops including new activities that are occupying the attention of researchers.

This Section discusses the opportunities for a large number of other crops. Some of these are traditional cereal crops and of these some, such as oats, have been produced in Tasmania to meet local needs for many years whilst others such as wheat, where there is general recognition that local production has negligible import replacement potential.

At the other end of the spectrum there is Tasmanian research such as that for grains and grain legumes where research has investigated whether a crop grown elsewhere can be successfully adapted to Tasmanian conditions, or where an appropriately developed variety of a crop can be used to meet increasing demand for product or used to replace another product in the feed chain.

Examination of the Tasmanian potential for buckwheat production falls into the first category. Research into the opportunities for field peas, lupins and other legumes falls into the second category as does the potential for legume or oilseed based protein to replace Jack Mackerel in fishmeal which has previously been referred to.

Consideration of the opportunities for developing other crops leads in two directions which broadly, but not exclusively, divide between the traditional crops and their future on the one hand and the introduction of new crops or the discovery of new applications on the other.

As indicated in this Section, the traditional crops may, like malt barley, offer farmers opportunities immediately, provided of course they are both profitable and compare favourably with alternative opportunities. Commonly, there is some 'on farm' use and some trade with local processors or in trade for feed purposes. The greatest obstacle to further development remains the immature market culture and the lack of a specialised grains merchant.

In the second area (new crops and new applications) these criteria for success apply equally well. An additional problem is that such developments are likely to be further down the track. There may be (as in the case of fishmeal) a need for considerable fundamental research.

6.2 Feed Barley

Barley (genus Hordeum) is one of the most ancient cultivated grains. Its earliest use was undoubtedly for human consumption. Only later would it have been used as feed for domesticated animals.

Tasmania produces less than 1% of all barley production in Australia as noted earlier in section two. The percentage would apply to feed barley as well. Barley provides good crop rotation, and soil repair abilities relative to other crops. *(Bob Reid DPIF*)

Feed barley production in Tasmania has been around 9,000 to 15,000 tonnes although this figure does not account for informal trading. The quantity appears to be the residual of that which is not used for malting. Requirements for use as feed and processing for stockfeed are not quite as demanding as for malt. This is reflected in the lower price obtained which, last year (Oct-Dec) was around A$144 per tonne (for Australia).

Section Two contained discussion about the different uses of feed barley. It was noted that the raw grain was used directly by piggeries, cattle feedlots. In addition, it was mixed with imported grain and processed by stockfeed manufacturers which also supplied poultry and egg producers. Section four also discussed some of the anecdotal evidence about the amateurish behaviour growers exhibited with regard to supplying local demand for feed grains. It was pointed out that the hypostasis was a well-developed market culture facilitated by specialist grains merchant.

It therefore should be clear that substitution of local for imported feed grain is a possible way to boost grain production on a sustainable basis. However, whether production is actually increased depends crucially on the future direction of wool prices as well as on solving problems mentioned above. If wool prices continue to be low then feed grain will be relatively more profitable. It was shown earlier in section five that there was no shortage of land suitable for such production as it can be taken from sown pasture area.

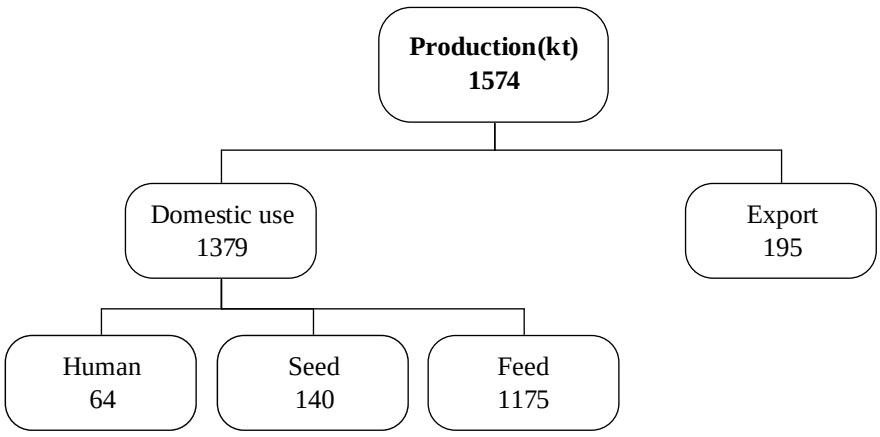
6.3 Oats

The 1790's saw the beginning of oat cultivation in Australia; the crop was grown for green fodder and hay for horses, dairy cattle and pigs. Worldwide, oats are an important crop in the development of agriculture, used as feed for horses, dairy cows, poultry and young breeding animals. In terms of area and production, oats rank fifth among the cereals on a world basis, being exceeded by wheat, rice, corn and barley.

A greater proportion of the oat crop is fed directly to livestock than any other cereal. Approximately 60% is used on farms where produced, and only about 40% sold off the farm. It is high in protein, fat, vitamin B1, and in minerals as phosphorus and iron. (Metcalfe, D. S. & Elkins, D. M. *Crop Production: Principles & Practices* 4th ed, Macmillan Publishing Co Inc. 1980)

The figure below indicates uses of Australian oats.

Figure 6.3.1. Supply & Disposal of Australian Oats: 1993-94 ABARE Forecast



Source: ABARE.

Tasmania only deals with feeding oats, grown as a fodder crop or as a grain for local stock feed. Approximately 9000 hectares are planted in the State annually for grain production. The majority is grown throughout the Midlands. The quantity produced over the past five years has been around 15,000 to 25,000 tonnes annually.

Statistical Information

Table 6.3.1. Selected Agricultural Statistics for Oats

Oats	1986	1987	1988	1989	1990	1991	1992
Area (hectares)	9798	7765	9560	10233	7568	9257	9146
Production (tonnes)	15800	11215	15552	17925	12824	18825	18576
Yield (tonnes/hectare)	1.6	1.4	1.6	1.8	1.7	2	2

Source: ABS 7114.6.

Table 6.3.2. Local and Gross Value of Oats, TAS 1991-1992 ($)M

	Gross Value($)M	Local Value($)M
Oats	2.5	2.1

Note: The total production of oats in 1991-92 was estimated at 20000-30000 tonnes
The price of oats is approximately $125 to $150 per tonne
Source: ABS 7503.6.

However, these figures are only estimates as a substantial percentage of the oats produced are kept on the premises for sheep feed. In fact, most oats are stored on-farm in the State.

The main users in the State are Gibsons, Inghams, Monds & Affleck (collectively estimated at around 8,000 tonnes) and small poultry farms (1000 tonnes). In addition, both the horse-racing and deer industry have demand at the premium end of the market for oats.

Markets for oats for human food processing are becoming more discerning in their quality requirements and now seek varieties with lower fat and higher fibre, as well as good physical grain quality. Competition on export markets has also intensified. Premium quality product is essential for Australia to maintain (and expand) market share.

Naked oats represent a new market opportunity for pig, poultry and pet foods. They have also performed well as a feed for race horses
(*Research Report 1992 GRDC*)

Due to low prices on the mainland, the market for oats (A$101 per tonne feed - Sydney, Oct-Dec 1992) is likely to remain static with limited scope for expansion. It is often the case that they can be imported into the state and still be competitive.

Tasmania exported 154 tonnes of oats in bags to United Arab Emirates and Japan in 1991/92, and 76 tonnes to United Arab Emirates in 1990/91. The Australian total exports for these periods were 23 708 tonnes and 46 828 tonnes respectively. Australia exported 14 988 tonnes in 1992/93, none of these from Tasmania (ABARE). To a certain extent these exports may be affected by changing subsidy schemes by the United States and the E.E.C.

Tasmania does not participate in the exportation of oats in bulk. Bulk oat export by Australia has increased slightly over the last three years, with the exportation of 166 946 tonnes in 1990/91, 116 843 tonnes in 1991/92 and 194 873 tonnes in 1992/93.

The crop is best suited to cool, moist regions. For best production, the soil should be well drained and reasonably fertile, but oats tolerate a fairly wide range of soil conditions. This crop is less sensitive to soil conditions than wheat or barley but more sensitive than rye.

Oats provide certain advantages over wheat and barley, fitting in well to pasture improvement programmes, and providing particularly valuable winter grazing when pastures are dormant. Oats have the ability to produce green feed under comparatively low temperature régimes. In addition to providing nutritious grazing for stock during winter, they will, if properly managed, recover to give a good yield of grain which can be economically produced and easily stored. Oats thrive on highly fertile soils but they also produce a satisfactory crop on a wide range of soil types, so long as these are fairly well drained and of at least moderate fertility, and providing that moisture is not limiting. Furthermore, oats may be sown on heavy wet soils that have a natural tendency to be cold and poorly aerated (Lazenby & Matheson, editors, Australian Field Crops: Wheat & Other Temperate Cereals).

It can be expected that if the milling industry declines, the poultry and feed lot industries will also decline and so too will the demand for oats and triticale.

Oats does not appear to be faced with a dramatic increase in demand in the near future. However, the same potential discussed above with regard to feed barley applies equally to oats. The stockfeed manufacturers and other local end users import a major part of their requirements. Under the right economic conditions, such as continued low prices for wool,

relative profitability allows farmers to take advantage of an improved market culture. Dissemination of information between suppliers and demanders would facilitate increased local production.

Just as a reduction in the level of support received from the Tasmanian Wheat Freight Scheme could adversely affect opportunities for locally produced grains other than wheat, so too would the removal of the Freight Equalisation Scheme. Any increase in the cost of shipping milled grain would be likely to add to the costs of down-stream industries which might then be priced out of the market.

6.4 Wheat and Triticale

Wheat is the only cereal imported into the state in significant quantities and this averages around 85000 tonnes annually. The Tasmanian Grain Elevators Board (TGEB) is responsible for almost all imported wheat. Its handling centres and storage facilities are located in Devonport, Launceston, and Hobart. Some additional wheat is shipped by container which is mostly used for stockfeed. In calendar year 1991, wheat used for human consumption took around 24 per cent of the total above whilst another 26 per cent was milled into industrial flour for use as starch for the paper industry. The remaining 50 per cent (42550 tonnes) was used for stockfeed. (DPI, Submission to Commonwealth Government on the Tasmanian Wheat Freight Compensation, January 1993)

'Hard'wheat cannot be produced economically (or physically) in the state and as such it is not possible to effectively substitute locally grown product. However, stockfeed, which constitutes around 50 per cent of total imports, does not require this type of wheat. High protein milling wheats can be grown in Tasmania. Furthermore, wheat is not necessarily the only grain useable as it is possible to substitute barley or triticale.

Tasmania has three principal agricultural uses for wheat; as feed for the poultry and pig industries and for drought and supplementary feeding. The amount of wheat imported into the state for stock feed varies greatly from year to year and is heavily dependent on the state's production.

The tables below provide information about wheat grown in Tasmania.

Table 6.4.1. Selected Agricultural Statistics for Wheat

Wheat	1986	1987	1988	1989	1990	1991	1992
Area (hectares)	1704	1729	1179	771	792	599	1167
Production (tonnes)	3840	4739	3815	2199	2687	2448	3249
Yield (tonnes/hectare)	2.2	2.7	3.2	2.9	3.4	4.1	2.8

Source: ABS 7114.6.

Table 6.4.2. Local & Gross Values of Wheat 1991 - 1992

	Gross Value(M)	Local Value(M)
Wheat	0.6	0.5

Source: ABS 7503.6.

Table 6.4.3. Area intended to be sown to Wheat for all purposes TAS March 1992-94

	1992	1993	1994(P)
Wheat(Hectares)	1297	1560	2200

Source: ABS 7111.6

Tasmania will never be self sufficient in wheat production and, as noted above, presently imports 96 per cent of its requirements. Removal of the TWFS is estimated to increase the cost of wheat by around A$33.50 tonne or some 17 per cent.

However, the InterState Commission Report (1984) gave the following amongst its reasons for concluding that large scale Tasmanian wheat production was not practical,

* agronomic difficulty of growing premium wheats, (which require a hot climate;

* small farm and paddock sizes, which make mechanical operations far more expensive

* different fertiliser regimes over the years on small paddocks means highly variable quality, even within farms;

* no grain handling infrastructure exists to handle the increase in production required. The change will be from some 3000 tonnes (of wheat) per annum to 90000 tonnes per annum - an increase of 30 times;

* the gross margin of crops which would have to be displaced to grow more wheat far exceeds the gross margin for wheat - a highly uneconomic situation;

* when wheat is needed in time of crisis (e.g. in a drought), Tasmania is not able to grow locally, meaning drought feeding costs are inevitably far higher than for the mainland;

* alternative grains cannot be grown in sufficient quantity to substitute for wheat;

Source: Cited in Submission by the Tasmanian Flour Millers to Industries Assistance Commission, November 1987.

These reasons largely still apply, although it may now potentially be possible to substitute some local feed instead of importing wheat for feed from an agronomic standpoint.

Due to the climatic conditions in Tasmania it is not possible to grow hard wheats in the State and consequently, a large portion of the State's imports is made up of hard wheats used for flour for human consumption. Notwithstanding the fact that milling wheats of an acceptable protein content and composition could be grown in Tasmania, a large amount of grain for other uses such as for stockfeed is also imported. The average growing area in Tasmania is around 20 hectares. This is far less than other areas of Australia and means that the per unit costs of production are much higher.

Tasmania is able to grow feed wheat; 'longbow' has been developed for this purpose and will give exceptionally high yields under good soil fertility and irrigation, in excess of 10 tonnes per hectare.

Optimists claim that Tasmania could potentially replace the imports of around 10 to 20 thousand tonnes of wheat annually which currently directly meet feedstock demand. The nature of gross margins suggest that 'Longbow' wheat, grown at the yields quoted for Tasmanian production, appears to compare favourably with other crops grown in the same areas of Tasmania. One problem that has been identified in Tasmania is the lack of on-farm storage. Farmers looking to supply wheat (or other grains for that matter) onto the market to fill this gap would need to factor in the cost of storage when calculating the profitability of the activity.

The Review of the Wheat Freight Scheme has been referred to on a number of occasions during this Report, largely in relation to possible effects on the infrastructure of the grains industry that might follow from its removal, reduction or the partial diversion of funds to alternative uses. Submissions to the Review by the Tasmanian Department of Primary Industry and Fisheries and by Hocking have drawn attention to the fears of millers and farmers about the effects on the milling industry and on downstream industries.

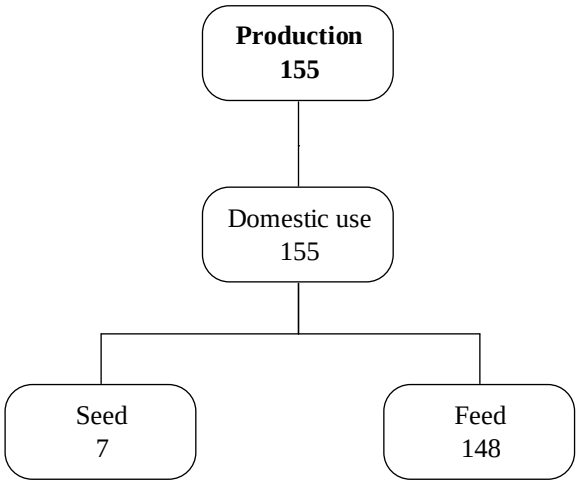
It must be emphasised that the general tenor of submissions made to this Review and to earlier reviews has been that the opportunities for replacing wheat with local production are negligible and that, in consequence, farmers and their organisations have supported either the continuation of the scheme in its present form or a reduction in the rate of direct assistance coupled with financial support for investment in additional grain storage facilities on the grounds that shipping costs would be reduced with the introduction of a single or two port discharge system.

Triticale is a hybrid of wheat and cereal rye. The first field acreages were in southern Maniboba in the 1960's. In Tasmania production is restricted to feed. Triticale has potential both as a feed grain and for use in the milling industry. It combines some of the milling and baking qualities of wheat with some of the nutritional characteristics of rye (i.e. higher lysine, higher protein, and better amino acid balance than wheat). Under certain conditions, it out performs either wheat or rye (Metcalfe, D. S. & Elkins, D. M. *Crop Production: Principles & Practices* 4th ed, Macmillan Publishing Co Inc. 1980).

Triticale can be seen as an alternative for wheat in the compounding of mixed feeds for the pig and poultry industries. However, since the domestic grain market was fully deregulated there has been a perceptible decline in Australian production of triticale. (Morescope Pty Ltd. *Australian Agriculture, The Complete Reference on Rural Industry*. 1991)

Figure 6.3.1 indicates the principal uses of Australian triticale.

Figure 6.4.1. Supply & Disposal of Australian Triticale 1993-94 ABARE Forecast (kt)



Source: ABARE.

Table 6.4.4. Selected Agricultural Statistics for Triticale

Triticale	1986	1987	1988	1989	1990	1991	1992
Area (hectares)	971	1225	1056	776	742	760	1020
Production (tonnes)	2438	3397	3374	2730	2549	2894	3387
Yield (tonnes/hectare)	2.5	2.8	3.2	3.5	3.4	3.8	3.3

Source: ABS 7114.6.

Table 6.4.5. Average unit gross value of crops TAS 1990-1992

Crops	1990-91($)T	1991-92($)T
Wheat	146.99	170.41
Triticale	167.40	150.19

Source: ABS 7503.6.

Average unit gross value for wheat was A$170 per tonne in 1992 whilst for Triticale it was A$150. The main buyers in the State are Inghams, Monds and Affleck and the Dairy Industry (taking about 5,000 tonnes of wheat and triticale between them).

Although present triticale cultivars offer some promise, several characteristics need to be improved before this grain has a marked impact on world agriculture. In Tasmania there is also strong support for investigation of potential new wheat cultivars for feed use and as replacement of part of the milling wheat. (GRDC Workshop held at Mount Pleasant

Laboratories in October 1991) It was claimed that there is also a general demand for a dual purpose wheat suitable for grazing and for grain.

However, both Wheat and Triticale (and Oats as discussed in section 6.2) are not viable export propositions because of quality and production cost factors. The diseconomies of scale associated with producing grain in Tasmania along with the freight costs mean that Tasmanian producers cannot compete with mainland producers.

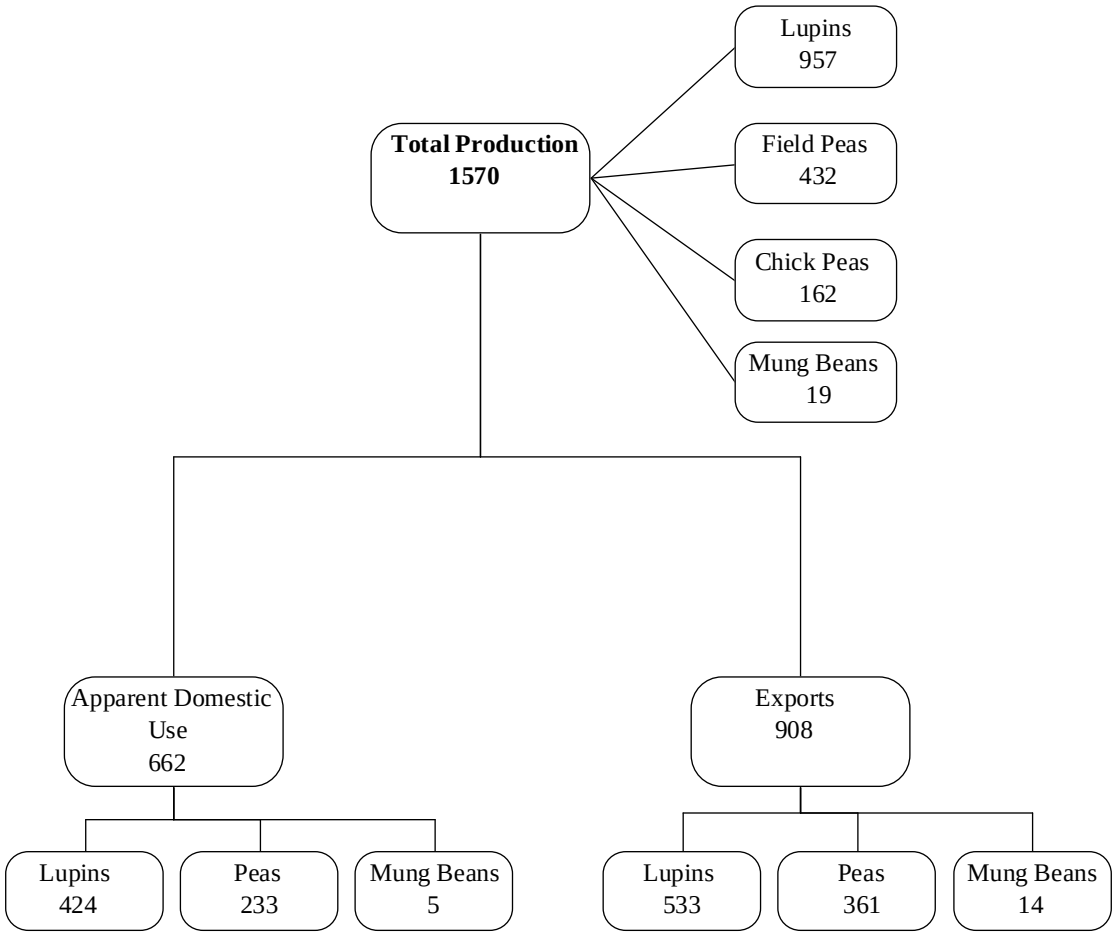
The market for these two grains is therefore likely to remain static with limited scope for expansion due to low prices on the mainland. It is often the case that they can be imported to the State more cheaply than the price for which Tasmanian farmers are prepared to sell them.

6.5 Field Peas, Lupins, and other Legumes

The beginning of the 1990's saw grain legume crops assuming increasing importance in the crop-pasture rotation. Legumes, such as lupins have been grown in the state for many years as a fodder and green manure phase. They break cereal disease cycles, and add nitrogen as well as being a valuable cash crop.
(Morescope Pty Ltd. *Australian Agriculture, The Complete Reference on Rural Industry*. 1991)

Figure 6.5.1 shows production and uses of lupins in Australia.

Figure 6.5.1. Supply & Disposal of Australian Grain Legumes: 1993-94 ABARE Forecast



Source: ABARE.

Research undertaken by DPIF indicates that a number of grain legumes are suited to Tasmanian soils and climate, and when grown in the State, result in a product of very high quality. Those mentioned most frequently as having a promising future when grown in Tasmania are white lupins, yellow lupins, lentils, chickpeas and narbon beans. With the possible exception of narbon beans, it is believed that human consumption could be targeted for these products.

Lentils are another species of grain legume which grows well in Tasmania and are particularly well suited to the human consumption market. This market is one that is over expanding because of the increasing awareness of society and healthy foodstuffs.

Australia is a net importer of these products particularly lentils and lupins for human consumption. It is claimed that 2000-4000 tonnes of each of these crops could be placed on the domestic Australian market and would replace imports. The farm gate value of such import replacement has been put at about $3m to State farmers. The land requirement implication of such production amounts to around 1800 hectares of plantings. Logically, the scenario would then indicate that Tasmanian production would lead to export to world markets. Such potential developments should properly be explored. However, the

fundamental questions of alternative opportunities and the market culture remain as obstacles to be overcome.

Narrow-leaf lupins have been grown extensively in Tasmania as stockfeed and green manure crops. These plants were developed in Western Australia and perform only adequately under Tasmanian conditions.

"White Lupins (Lupinus albus) have a high yield potential and can outperform narrow-leaf lupins in higher yielding environments such as Tasmania. Experimental yields have ranged from 4.8 to 5.9 tonnes per hectare on the red soils of the north west and with a protein level of 36.5 per cent, compared with 31.5 per cent in narrow-leaf lupins, they would seem to offer a great deal of promise. Although they are a very suitable stockfeed, and are said to be "excellent in poultry rations, probably, most importantly, there is a market for them in human consumption." (*Tasmanian Country* Friday 7 May 1993, p. 16)

White lupins contain low levels of alkaloid and hence are considered good for human consumption. They also provide good crop rotation.

As white lupins are an established human food, it is logical that human consumption should be thought of as the market Tasmanian farmers should be aiming at. White lupins are biologically well suited to Tasmania, beign capable of grown at altitiude. Research to date has indicated they are resistant to viruses and have not produced any disease problems, but as with all products destined for human consumption, it is essential to maintain the quality of production. (Bob Reid DPIF)

Grain legumes will grow better and achieve higher quality if grown under irrigation and preferably on the highly fertile soils of the north and north west coast. Recent experiments on the north-west coast have seen yields of around 4 to 6 tonnes per hectare. These yields are the minimum required to make lupins competitive with other crops, particularly with those on the north-west coast. However, they are more likely to be grown in other areas and often without irrigation.

The market for edible lupins is also expected to grow as the ethnic population of Australia grows, and as society becomes more health conscious.

Yellow lupins (Lupinus luteus) are not as common as the white lupins, however they offer potential. They have been grown as green manure, stock feed and, to a limited extent, as human feed. The use as a human foodstuff of some varieties is limited by the fact that they are very bitter due to them having a high alkaloid content. (*Tasmanian Country* Friday 7 May 1993 p. 16). However, low alkaloid varieties are also available, with the earliest dating back to 1929.

They provide excellent digestive fibre for human consumption, better than any other crop. Tasmania has a better climate than the mainland to grow yellow lupins--that being a temperate, mild oceanic climate with sandy soil.

Lupinus Mutabilis is a primitive type of plant which grows at high altitude in the Andes where it originated. Here, at a higher latitude, it will grow at a lower altitude. It is adaptive to Tasmanian soils and contains the highest protein of all lupins.

Narbon beans (Vicia narbonensis) are similar to broad beans but are much smaller. They grow particularly well in low temperature and they are resistant to the disease chocolate spot. They will most likely become a stock feed.

Other crops that are mentioned by researchers as having potential include, Chick peas (with disease problems), Lentils Soybeans, and Navy beans.

It is said that the demand for field peas for stock feed exceeds the supply and supporters claim that there is an opportunity to develop production with proper marketing. An indication of the opportunity for developing field peas is evidenced by the major expansion occuring on the mainland with good new varieties, including ones for human consumption. for domestic consumption and export to South Asia.

Such statements bring the discussion back once more to the argument that without a market culture and without a grain chandler operating in the area, opportunities will be missed.

Tasmania would have marketing advantage in that quality is such an important issue in production. Tasmania already has a 'clean/green' reputation. Processing and marketing of product to product could be done through one of the established vegetable or grain processing companies in the State. This has the potential to be a particularly effective method if and when expansion onto the world market arises.

Export Opportunities

Export opportunities for grain legumes would appear to exist if the Tasmanian industry could be world competitive but, as always, this is likely to be heavily dependent upon production efficiency, quality and freight costs. Currently Australia imports almost all the grain legumes which are used to satisfy the domestic human consumption market. This means that a market certainly exists if Australian producers can produce a product of similar or better quality for a comparable price.

It is claimed that very little downstream processing of the raw product is required and it is understood that little investment in infrastructure would be required. Moreover Tasmania is well situated in so far as Melbourne is most likely to be the largest mainland market because of its high ethnic population.

6.6 Fishmeal

Currently cereals are used in the production of fishmeal. It is understood that the current demand for fishmeal by Tasmanian salmon farms is in the order of 5,000 tonnes per annum. To this must be added the demand for fishmeal for trout farming. Although fishmeal consists largely of Jack Mackerel it has been estimated that the use of cereals in the fishmeal currently amounts to about 1,000 tonnes. With an estimated doubling of the size of the Tasmanian salmon industry by the year 2,000 this opens the possibility of legumel sales for fishmeal production.

The challenge is for Tasmanian producers to supply the cereal component in this production rather than for it to be imported.

The longer range research objective is to develop an acceptable fishmeal that uses a greater proportion of cereals and a smaller proportion of fish protein. It has been argued that if such research is successful the opportunities for Tasmanian grain growers would be considerable because of mainland, and more particularly, overseas demand for a grain based fish food.

There is little doubt that such research, if successful, would have important long term consequences for fish farming in general and the Tasmanian salmonid industry in particular. In recent times it has become clear that the Tasmanian salmon industry depends critically on high quality fishmeal. Disruptions to the supply of Jack Mackerel have forced the importation of inferior materials from Chile with an identifiable effect on fish production. Given the likelihood that the industry will not want to be forced to rely on erratic catches of wild fish as it expands, it might be expected that research into alternative fish foods might be given a high priority. This appears to be one area where the research may need to be directed at the downstream industry, with potential benefits to the grain industry.

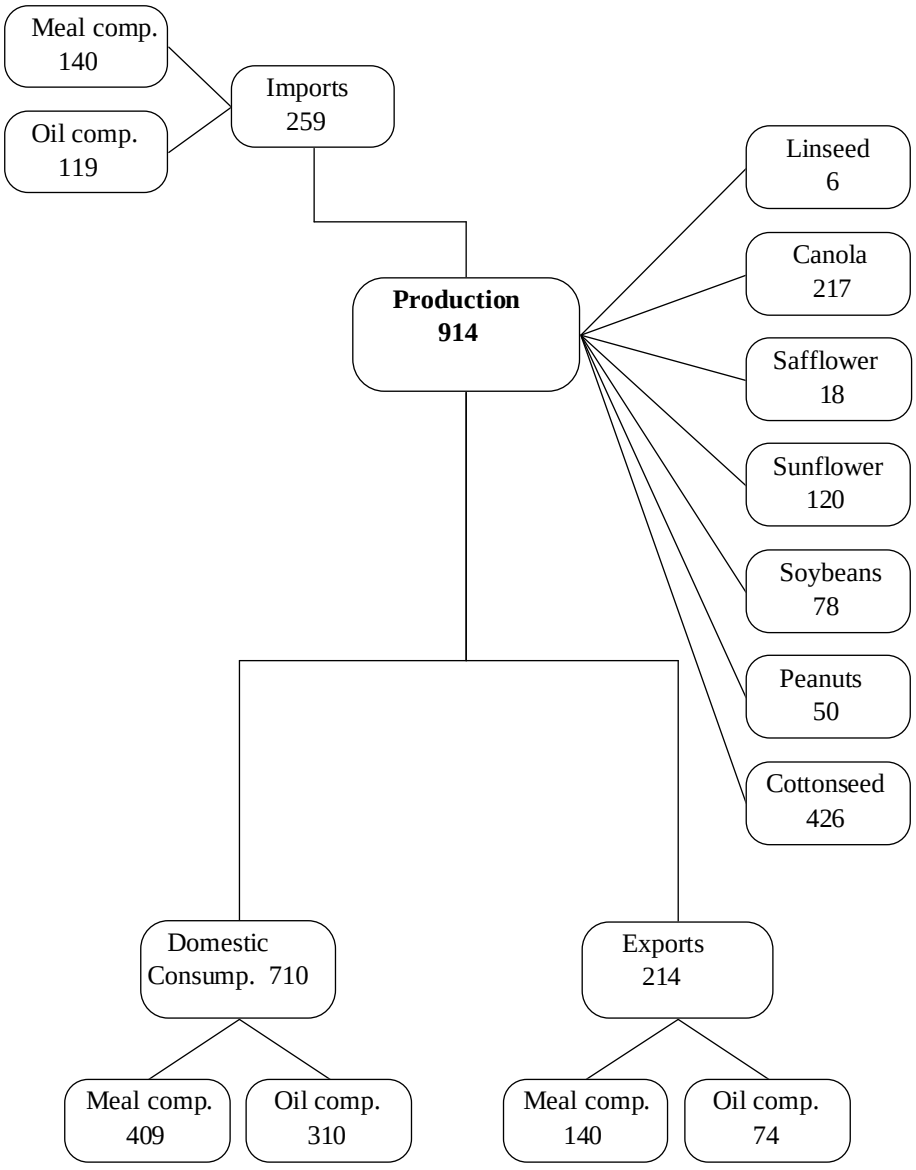
Once again a warning must be sounded. Successful research does not necessarily translate into a successful development in the Tasmanian grains industry though, as in the case of Franklin barley, it will provide the local industry with an opportunity.

6.7 Oilseeds and Vegetable Oil

Oilseeds provide easily available and highly nutritious human and animal food. Many also have industrial uses, since they are relatively easy to incorporate into locally manufactured products. This may be good for import substitution. As seed yields go up and more stable supplies are achieved this may in turn generate greater local demand for oilseeds as human foods. (Weiss, EA *Oilseed Crops*, Longman Group Ltd. 1983)

The figure below shows production and usage of Australian Oilseeds.

Figure 6.7.1. Supply & Disposal of Australian Oilseeds 1993-94 ABARE Forecast



Source: ABARE.

The following comments are indicative of statements being made about oilseeds in Australia.

'It is believed that the Australian Oilseed industry has a promising future if it can take up opportunities for import replacement and export niches.'
(*Ground Cover-Research to report grain growers from the ground up Issue 2 1993 p. 1*).

Five goals that have been identified for the next five years are,

a) defining the role of the AOF in achieving the industry's vision,

b) improving the market share for Australian oilseeds in local and export markets,

c) improving products

d) improving product techniques,

a) improving grower confidence.

At present grower confidence is low, with price uncertainty particularly for sunflowers existing. This is one reason why other crops are preferred over oilseeds.

"Growers perceived oilseeds to be a riskier and more difficult crop to grow than traditional cereals, especially at a time when sheer survival is uppermost in many minds". Marketing knowledge is considered the key to growing oilseeds successfully. (*Ground Cover* 'Research to Profit Grain Growers from the Ground up.' Issue 2 1993)

'It is believed that the Oilseed industry has a promising future if it can take up opportunities for import replacement and export niches.' (*Ground Cover*. 'Research to Profit Grain Growers from the Ground up.' Issue 2 1993 p. 1).

"Allan McCallum, Chairman of the Grain Council of Australia's Oilseeds and Grain Legumes Committee and Vice President of the AOF, has said the industry's commitment to achieving these goals would ensure a seed oil industry that is internationally competitive and one that could substantially replace imports currently valued at $1000 million." (*Ground Cover* 'Research to Profit Grain Growers from the Ground up.' Issue 2 1993)

In this context, there have been suggestions that Tasmania may have some opportunities with respect to oil seeds. Canola which is used widely in stock feed within the State is said to be well suited to Tasmanian conditions with much higher yields being achieved here in trials than on the mainland..

Many people hold the view that a locally based oilseed crusher would be necessary for the production of oilseeds to commence, though there have been suggestions that locally produced Canola might be refined in Melbourne. It is considered unlikely that returns to Tasmanian growers would be sufficiently attractive to encourage them to produce for shipment of oilseed to the mainland for processing. More relevant is the need to undertake a feasibility study into the establishment of a crusher which is accepted as the critical constraint to development of oilseed production in Tasmania.

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