Marketing of Agricultural and Horticultural Products:

- selected examples

Apples

Barley

Summerfruit









K B Nicholson

1989 Visiting Teaching Fellow Economics and Marketing Department Lincoln University

July 1990

Views expressed in Agribusiness and Economics Research Unit Discussion Papers are those of the author(s) and do not necessarily reflect the views of the Director, other members of staff or members of the Management Committee

> Discussion Paper No. 127 Agribusiness and Economics Research Unit PO Box 84 Lincoln University Canterbury NEW ZEALAND Telephone (64) (3) 252-811 FAX (64) (3) 252-099

> > ISSN 0113-4507

AGRIBUSINESS & ECONOMICS RESEARCH UNIT

LINCOLN COLLEGE, CANTERBURY, NEW ZEALAND.



The Agribusiness and Economics Research Unit (AERU) operates from Lincoln College providing research expertise for a wide range of organisations concerned with production, processing, distribution, finance and marketing.

The AERU operates as a semi-commercial research agency. Research contracts are carried out for clients on a commercial basis and University research is supported by the AERU through sponsorship of postgraduate research programmes. Research clients include Government Departments, both within New Zealand and from other countries, international agencies, New Zealand companies and organisations, individuals and farmers. Research results are presented through private client reports, where this is required, and through the publication system operated by the AERU. Two publication series are supported: Research Reports and Discussion Papers.

The AERU operates as a research co-ordinating body for the Agricultural Economics and Marketing Department and the Department of Farm and Property Management, Accounting and Valuation. This means that a total staff of approximately 50 professional people is potentially available to work on research projects. A wide diversity of expertise is therefore available for the AERU.

The major research areas supported by the AERU include trade policy, marketing (both institutional and consumer), accounting, finance, management, agricultural economics and rural sociology. In addition to the research activities, the AERU supports conferences and seminars on topical issues and AERU staff are involved in a wide range of professional and College related extension activities.

Founded as the Agricultural Economics Research Unit in 1962 from an annual grant provided by the Department of Scientific and Industrial Research (DSIR), the AERU has grown to become an independent, major source of business and economic research expertise. DSIR funding was discontinued in 1986 and from April 1987, in recognition of the development of a wider research activity in the agribusiness sector, the name of the organisation was changed to the Agribusiness and Economics Research Unit. AN AERU Management Committee comprised of the Principal, the Professors of the two associate departments, and the AERU Director and Assistant Director administers the general Unit policy.

AERU MANAGEMENT COMMITTEE 1990

Professor A C Bywater, B.Sc., Ph.D. (Professor of Farm Management) Professor R H Juchau, B.Com., B.Ed., M.A. (Professor of Accounting and Finance)

AERU STAFF 1990

Director

Professor AC Zwart, B.Agr.Sc., M.Sc., Ph.D. Assistant Director

R L Sheppard, B.Agr.Sc. (Hons), B.B.S.

Research Officers

G Greer, B.Agr.Sc. (Hons)

T P Grundy, B.Sc. (Hons), M.Com.

Professor A C Zwart, B.Agr.Sc., M.Sc., Ph.D. (Professor of Marketing) R L Sheppard, B.Agr.Sc. (Hons), B.B.S. (Assistant Director, AERU)

Reseach Officers L. M. Urquhart, B.Com. (Ag), Dip.Com. J R Fairweather, B.Agr.Sc., B.A., M.A., Ph.D. Secretary

J Clark

Contents

	Page
Tables	(v)
Figures	(vii)
Preface	(ix)
Acknowledgements	(xi)
CHAPTER ONE	
APPLES	
Background of the Industry	3
Production	3
Structure of Marketing Channels	8
Sales Arrangements and Pricing	11
Organisations and Groups Affecting the Industry	16
Quality Control, Grading, Packaging and Storage	18
Market and Product Research	21
Problems within the Industry	22
Market Trends (the future)	24
Resources	28
Acknowledgements	28
CHAPTER TWO	
BARLEY	
Background of the Industry	31
Production	31
Structure of Marketing Channels	34
Sales Arrangements and Pricing	36
Organisations and Groups Affecting the Industry	39

Organisations and Groups Affecting the Industry Quality Control, Grading and Storage Market and Product Research Problems within the Industry Market Trends (the future) Resources Acknowledgements

41

43

44

45

45

46

(i)

CHAPTER THREE

SUMMERFRUIT

Background of the Industry 49 Production 50 Structure of Marketing Channels 57 Sales Arrangements and Pricing 59 Organisations and Groups Affecting the Industry 61 Quality Control, Grading, Packaging and Storage 63 Market & Product Research 66 Problems within the Industry 68 Market trends (the future) 69 Resources 70 Acknowledgements 71

CHAPTER FOUR

WOOL

Background of the Industry	75
Production	76
Structure of Marketing Channels	82
Sales Arrangements and Pricing	84
Organisations and Groups Affecting the Industry	88
Quality Control, Grading and Packaging	90
Market and Product Research	91
Problems within the Industry	92
Market Trends (the future)	94
Resources	95
Acknowledgements	95

(iii)

Tables

1.1	1988 Production Figures Main Varieties (In Tray Cartons - 18.5 kg)	3
1.2	1989 Production Figures Main Varieties (In Tray Cartons - 18.5 kg)	4
1.3	Apple Production by Region in Tray Cartons (18.5 kg) 1989 Figures	5
1.4	Destinations of Exports of Fresh Pipfruit (in '000s Tray Cartons)	б
2.1	Area and Fields of Barley Threshed by Local Government Region	32
2.2	Export Amounts and Destinations of Barley for the 1987/88 Year	38
3.1	Summerfruit Production (tonnes) and Area Planted (hectares) at June 1988	52
3.2	Total Production Values and Exports of Fresh Summerfruit (Year to June 1988)	53
3.3	Destination and Value of Exports of Fresh Summerfruit	55
4.1	Characteristics of Main NZ Wool Breeds	77
4.2	FOB Value of New Zealand Wool Sector Exports	80

Figures

1.1	Apple Marketing Channels	8
1.2	NZ Apple and Pear Exports	9
1.3	Examples of Export Sales Channels of Apples (Fresh Fruit)	10
1.4	Sales Values of Apples (FOB)	11
1.5	Summary of Payments to Growers	15
1.6	Organisations and Groups Affecting the Apple Industry	16
2.1	Time Line of Area and Yield of Barley	33
2.2	Barley Marketing Channels	34
2.3	Exports of Barley (Approximate)	37
2.4	Organisations Affecting the Barley Industry	39
2.5	Time Line of Yield per Hectare	43
3.1	Areas of Summerfruit Production	51
3.2	Exports of Fresh Summerfruit	54
3.3	Export Values of Individual Fresh Summerfruit (FOB)	56
3.4	Marketing Channels of Summerfruit	57
3.5	Organisations and Groups Affecting the Summerfruit Industry	61
4.1	Sheep Numbers at beginning of Season and Clip per head	78
4.2	Wool Production	78
4.3	Main Destinations for N.Z. Wool	79
4.4	Wool Marketing Channels	81
4.5	Real Wool Prices	86
4.6	Organisations and Groups affecting the Wool Industry	87

.

Preface

This report was compiled by Kevin Nicholson during his Teaching Fellowship at Lincoln University during 1989.

The report is intended to be of use to teachers as a reference for the Bursary Agriculture/Horticulture prescription and to provide others with insights into selected primary industries in New Zealand.

It is particularly difficult to get adequate local resources for new subjects of this type but it is hoped that this report will provide a starting point for a number of other reviews.

Tony Zwart Director

Acknowledgements

The author would like to thank:

The Lincoln Foundation for the grant enabling the costs and travel associated with researching this report.

Also, the individuals in Producer organisations and Government departments, who gave up their time and provided the valuable background information for this report.

Special thanks to Mr Stuart McIntosh of Earnscleugh, Central Otago for all his assistance, and Ms Annette Oakes (Department of Economics and Marketing, Lincoln University) for her perseverance with the typing.



Background of the Industry

Apple growing in New Zealand began in the early 1840s with the arrival of the first settlers. The potential for commercial fruit growing was recognised so that by 1910 New Zealand was exporting 5,650 cases of fruit. This steadily expanded so that by 1914 the amount exported was 68,000 cases. Growers combined together in 1916 and formed the New Zealand Fruitgrowers Federation "to foster, promote and protect the fruit industry". At this stage the industry was rather fragmented even though fruit was exported through the newly formed (1926) New Zealand Fruit Export Control Board. Then, because of the outbreak of war in 1939 and the associated problems with shipping space the Government took over control of the Industry.

The New Zealand Apple and Pear Marketing Board (NZAPMB) was established with the Apple and Pear Marketing Act of 1948 in order to set up a central organisation to acquire and market <u>all</u> apples (and pears) grown in New Zealand. There has since been several amendments to the original act eg in 1977 an amendment to allow the Board to handle other horticultural products; the reasoning was to give the Board greater flexibility in its marketing and in its utilization of plant, storage and personnel.

Production

Cultivars/Varieties

Table 1.1: 1988 Production Figures Main Varieties (In Tray Cartons - 18.5 kg)

Variety	Export	Local	Processed	Total	
	0.000.100	< co 000	1.071.007	F 0.40 1 FF	
Granny Smith	3,328,129	660,092	1,971,936	5,960,157	
Red Delicious	2,650,578	452,764	763,931	3,867,273	
Braeburn	837,877	195,775	271,018	1,304,670	
Royal Gala	680,767	156,380	278,845	1,115,992	
Cox's Orange	779,103	85,175	665,245	1,529,523	
Gala	298,933	191,355	234,722	725,010	
Fuji	21,616	9,733	20,162	51,511	

Source: NZAPMB

NB: All statistical figures in this report refer to the statistical year ie 1989 Figures are for 1 July 1988 to 30 June 1989.

Variety	Export	Local	Processed	Total	
	• • • • • • • •		·		
Granny Smith	2,944,641	713,513	1,816,041	5,474,195	
Red Delicious	2,272,435	458,245	728,691	3,459,371	
Braeburn	874,786	228,497	341,506	1,444,789	
Royal Gala	765,926	329,957	317,677	1,413,560	
Cox's Orange	723,127	95,728	633,996	1,452,851	
Gala	299,600	221,417	196,836	717,853	
Fuji	30,354	29,883	42,938	103,175	

1 able 1.2. 1909 Floudenon Figures Main Valleues (In Tray Carlons - 18.3 K	Table	1.2:	1989	Production	Figures	Main	Varieties	(In	Tray	Cartons	- 18.5	k
--	--------------	------	------	------------	---------	------	-----------	-----	------	---------	--------	---

Source: NZAPMB

Granny Smith:	Green apple with crisp white flesh. Excellent for cooking and is a refreshing tangy eating apple.
Red Delicious:	A sweet apple with a dark red skin. (Many different cultivars.) Mid-season. Bland sweetness.
Braeburn:	NZ bred apple (unique to NZ). Very good dessert apple (late). Brownish red stripe, crisp and juice; keeps well.
Royal Gala:	Includes several similar cultivars eg Imperial and Regal which are red mutations of Gala. Good dessert apples (early). Juicy and sweet with delicate bland flavour.
Cox's Orange:	A semi-sweet early season variety with red flushes on light yellow skin.
Gala:	An apple with a pink blush on a yellow background. It is a very sweet crisp eating apple.
Fuji:	A Japanese apple variety that is late season. It is a very sweet apple varying from a soft pinkish stripe to a bright red colour. This apple has excellent keeping qualities.

The main production areas in New Zealand are in Hawkes Bay, Nelson, Auckland, Canterbury and Otago. Production is steadily increasing in all regions especially Canterbury.

Region	Export	Local	Processing	Total	
Auckland	*100,000	156,000	37,000	293,000	
Canterbury	164,000	255,000	203,000	622,000	
Gisborne	50,000	20,000	42,000	112,000	
Hawkes Bay	5,107,000	1,587,000	2,616,000	9,310,000	
Hamilton	37,000	255,000	44,000	336,000	
Marlborough	271,000	24,000	210,000	505,000	
Nelson	3,400,000	189,000	1,606,000	5,195,000	
Otago	362,000	373,000	158,000	898,000	
Wellington	-	105,000	2,000	107,000	
* Only Granny Smit	h variety exported fr	om Auckland.			

Table 1.3:Apple Production by Region in Tray Cartons (18.5 kg)1989 Figures

Source: NZAPMB

(NB: These figures do not include gate sales.)

Local Market

Some growers are selected for 'local market panels' and others pack only for export. To be selected for a local market panel a grower must have produced 75% 'fancy' content the season before. The criteria for fancy grade are:

1. Size oversize ----- juicing 'Fancy' undersize --- juicing + rejects eg bruising, marked

2. Colour eg Royal Gala need to be 66% red.

Local market panels are variety based eg a grower may pack one variety for the local market and the rest for export. In the past the local market has paid a higher real return as export fruit grading and packaging costs had to be met by the grower. However the differences are now minimal.

If local market panel growers have fruit put into Controlled Atmosphere (CA) storage then a premium is paid for this.

In addition to the fruit from local market panels some varieties are only sold on the local market eg Johnathon, Splendour and Kempton. This is because of lack of demand, low amount of production, or transport and storage problems. Also the fruit from young trees (the first 3 years or so production) goes into the local market eg Red Chief - a red delicious type apple.

Another factor determining whether apples will be sold on the local market or exported is locality. For example almost all Nelson/Marlborough fruit is exported.

Export Market

All fruit not sold on the local market is exported. The NZAPMB is the only body able to export (or import) apples from New Zealand. It has an extensive network of subsidiaries worldwide to assist in the distribution of its products.

Contract of the second s	ik a second second				
	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
Caribbean	20	21	18	15	14
Pacific Is	174	147	113	94	95
Middle East	211	202	191	87	101
SE Asia	748	797	757	752	926
North America	1,571	1,694	1,903	1,681	1,731
EEC/Other Europe	<u>5,415</u>	<u>5,908</u>	<u>6,221</u>	<u>7,728</u>	<u>6,935</u>
Totals	8,139	8,769	9,203	10,357	9,802

Table 1.4: Destinations of Exports of Fresh Pipfruit (in '000s Tray Cartons)

Source: NZAPMB

NB: Above figures include pears but these only represent just over 1% of export volumes.

So the EEC and Europe represent the biggest market for NZ fresh apple exports (about 75% in 1988) although the NZAPMB does export to over 50 countries altogether.

International Markets for NZ Apples

United Kingdom	Belgium	Portugal	China	Barbados	Kiribati
Eire	Holland	Greece	Hong Kong	Curacao	Niue
Northern Ireland	France	Saudi Arabia	Singapore	Guadeloupe	Papua New Guinea
Denmark	West Germany	Canary Islands	Thailand	Martinique	Tahiti
Finland	Austria	Angola	Malaysia	American Samoa	Rarotonga
Iceland	Italy	Zaire	Taiwan	Cook Islands	Solomon Islands
Norway	Spain	Canada	Phillipines	Fiji	Tonga
Sweden	Spain	United States	Guam	New Caledonia	Vanuatu

Structure of Marketing Channels

Fig 1.1: Apple Marketing Channels



Grower Options

There are limited options available to growers as the apple industry is regulated by law. 85% of the crop passes through the NZAPMB and apart from supplying them directly, a grower has the following options:

A. Gate sales or mail order: A grower may sell up to 40 kg at a time to any end consumer (and may deliver it). Depending on the location of the orchard, gate sales can be a significant part of the grower's income. In this situation there will be many more inputs required by the grower eg time, premises, packing, advertising, personnel.

Some growers use gate sales to obtain better prices for their oversize or seconds fruit; when it would only realise 8.25c/kg (1989 price) as juicing grade.

Another option within gate sales is 'pick your own'.

- B. A grower may sell directly to an approved, licensed (with the NZAPMB) processor eg Canneries or Juice Factories.
- C. Growers may supply retailers direct if they are licensed to do so; usually this is where it is uneconomic for the NZAPMB to market the fruit, eg organic producers.



Fig 1.2: N.Z. Apple and Pear Exports





Sales Arrangements and Pricing

Sales Arrangements (Export)

Fig 1.3 illustrates the export division of the NZAPMB and the range of sales arrangements. As can be seen the Board employs a variety of strategies depending on the marketplace.

Sales to the UK and Continent (ie EEC) are completed through subsidiary companies who onsell the product to supermarkets and the retail trade.

Sales to North America are through a sales management office with exclusive selling agents in territories based in Seattle and Vancouver. The prices set receive feedback from the agents.

In Asia the Board carries out consignment selling where the marketing risk is carried by the Board. This is mainly because of culture differences and the difficulty in penetrating markets here. (In this situation there are many small dealers in fresh fruit.)

The F.O.B. (Freight on Board or value at wharf) sales values of fresh and processed apples are shown in Fig 1.4.



Fig 1.4: Sales Values of Apples (F.O.B.)

Source: NZAPMB

Sales Arrangements (Local)

The NZAPMB has two outlets on the local market for fresh fruit (apart from that processed). One channel (the only one in the past), is via the auction houses where prices are set with a handling commission added on by the auction houses. So auction houses only really act as distribution centres.

Recently the Board has decided to supply large retailers eg supermarkets direct. The minimum amount supplied is 8 pallets at a time. Each pallet contains 50 tray cartons of fruit or if the fruit is 'loose' in crates, equivalent to 40 tray cartons.

Pricing

The NZAPMB is a single desk seller, that is, by legislation it controls all apple (and pear) sales, including exports and imports.

The Board is a price maker; in other words it dictates to the industry what the prices will be each season. Because of this the Board has come in for much criticism especially with respect to accountability. This season (1989) saw a change in strategy in that the NZAPMB intends to more closely reflect the actual market returns (per variety) in payments to growers.

Export Market

From Table 1.1 the importance of the export market can be seen. Consequently pricing is based around the export market.

Prior to each season the NZAPMB publish a "Price List" containing a schedule of payments. "Market Indicator Rates" (MIR) are established for each variety from the combined local and export previous two years actual returns plus the estimated coming years returns as a base.

When crop is received by the Board an "Advance Payment" of 70% of the MIR is made to the grower. This 70% advance is termed the 'Established Rate' (under section 27AB of the Apple and Pear Marketing Act). This established rate or advance payment is a guaranteed payment paid within about 2 to 3 weeks of receipt of crop from the grower.

At the end of each season actual market returns are collated and if a certain variety returned more than the 70% established rate, payment is made to bring the variety up to 80% of the actual market return (less any transfers made necessary by those varieties that don't realise the 70% level). The remaining 20% is paid out as seen fit by the NZAPMB. Some of this 20% may be paid to improve the returns of the poorer performing varieties (called cross-subsidisation) so the Board can maintain a suitable product mix. In other words if payment was made totally on market returns then growers would tend to produce only those varieties with the best returns. This would limit the strategies of the NZAPMB in its marketing effort as there is still a good demand for the lesser paying varieties. The basic strategy of the Board is to best serve its customers and to counter competitors.

For example the top prices projected for export (MIR values) this past season (1989) were:

Fuji about \$22 per tray carton

Braeburn about \$20 per tray carton

Gala and Royal Gala about \$18-\$20 per tray carton.

compared with

Red Delicious, Granny Smith and Golden Delicious MIRs of \$8-\$10 per tray carton.

NB: These prices were for optimum sized and graded apples.

Local Market

Local market returns to growers are determined by the export prices. That is the same MIR base is initially used but a differential is taken off of between 50c and \$2.00 per tray carton (so local returns are about 90% of the export market prices). This is to reflect the additional costs met by export growers eg maintaining quarantine acceptability, storage of packing materials, maturity, size range etc. This means that local and export market returns to growers are effectively the same, also the same standards are used for each. (Previously, local market had better real returns.)

Progress payments (those additional to the 70% advance) for both local and export are made in September to late October - depending on variety the final payment is made in late December when all information is collated.

Processed fruit payments ie those fruit oversize, undersize and rejects through marking etc, are paid out on a similar MIR basis although this season (1989) the full MIR rate of 8.27 c/kg was paid.

Levies

Growers must pay an Orchard Levy of \$25 per hectare with a minimum payment of \$120 and a maximum of \$1000. This money goes to the NZ Fruitgrowers Federation.

There is also a levy on production. A first tier levy charge of 24 cents per tray carton and a second tier levy of \$1.34 per tray carton for <u>any</u> extra production above the previous year(s). These levies are to fund the NZAPB facilities such as coolstores, packhouses etc.



Organisations and Groups Affecting the Industry

Fig 1.6: Organisations and Groups Affecting the Apple Industry



GROWER ASSOCIATIONS - local groups of growers.

<u>NZ FRUITGROWERS' FEDERATION</u> - represent grower interests; see themselves as the "policy arm of the industry".

<u>NZAPMB</u> - has the power to acquire and market all apples (and pears) grown in NZ and has sole importing rights to these fruit at present. Four out of six directors of the NZAPMB are members of the NZ Fruitgrowers' Federation.

<u>FIPIA NZ</u> - Fruit Industry Plant Improvement Agency. Formed in 1981 by the NZ Fruitgrowers Federation and the NZAPMB. Its main task is the development and improvement of desirable fruit tree varieties and rootstocks.

<u>FRUITFED LTD</u> - Established in 1985 as a joint venture between NZ Fruitgrowers' Federation and the NZAPMB. Fruitfed operates as an independent trading and export company.

MAFCORP - acts as the policy arm of the Government working mainly on cost-benefit analyses.

- acts as an advisor in marketing and levies
- provides a legislative framework
- acts as an advocate for the agricultural sector against other ministries
- has an input into External Affairs.

MAFQual - Ensures that phytosanitary (ie pest and disease) regulations and quality standards are met.

MAFTech - Involved with consultancy work and looking at new products. Has links with FIPIA.

DSIR - Department of Scientific and Industrial Research. Has close links with research and FIPIA.

FRUIT RESEARCH COMMITTEE (FRC) - A committee formed from representatives of all involved in research. The aim of the FRC is to act to ensure Government continues to adequately fund research. The FRC determines research priorities, then works to see they are met.

<u>NZ FRUIT AND PRODUCE AND AUCTIONEERS FEDERATION</u> - Auction Houses act as distribution centres for apples. They take a commission for this service.

<u>PROCESSORS</u> - The NZAPMB itself is a processor but licences others to process fruit by either drying, canning or juicing.

<u>LARGE RETAILERS</u> - Recently large retailers have exerted quite an influence on the industry. The result is that they can now purchase directly from the Board.

Quality Control, Grading, Packaging and Storage

Quality Control

Export Market

The NZAPMB is responsible for ensuring all export apples have been inspected and meet the required quality. Growers who meet the required standard are able to send their fruit directly to the Board. Each of these growers has an appointed quality controller who works in closely with the Board's field staff. New growers and those growers who don't meet the Board's direct submission criteria must have their fruit inspected by a NZAPMB quality controller (and pay the associated cost).

The Board's quality assurance programme is monitored by MAFQual mainly in the phytosanitary role ie pests and diseases.

The NZAPMB further checks the quality by conducting random sample tests when the fruit is received in its coolstores and when it is received at its destination.

Local Market

Essentially the same programme is used to monitor local market standards.

Grading and Packing

Export Market

Harvesting is an important stage in the ongoing quality control and grading process. Fruit must be picked for size, colour, maturity and above all quality; unsuitable fruit are discarded.

The harvested fruit is placed in bulk bins for transport to packing sheds where the fruit is placed into a water dump for grading. Fruit is graded initially for colour and defects. That which does not meet the export grade standard is removed for juicing.

Next the fruit is sorted by automatic weighing machines into its appropriate 'count size' where it is packed into cartons (each holding 18.5 kg of fruit and referred to as tray cartons). The 'count size' refers to the number of apples contained in a carton. Count 86 means there are 86 apples in the carton. So the higher the count size the smaller the apples. The acceptable count sizes differ for each variety depending on demand and the market they are going to.

For example

Red Delicious	64 198
Golden Delicious	88 163
Granny Smith	64 163
Gala and Royal Gala	80 175
Braeburn	72 198
Braeburn	72 198

Information printed on the carton includes:

- count size
- variety code eg Red Delicious = 66
- growers registered number
- date.

After packing the cartons are placed in coolstores.

The NZAPMB puts a time constraint on fruit from the time of harvest to its receipt at Board coolstores in order to obtain optimum storage life for both local and export fruit.

Local Market

Local grading standards are basically the same as for export fruit. The bulk bins sent in by growers are sampled, and from each sample the fruit is graded so payment can be calculated. Local market fruit may be packaged in several ways:

- (i) loose in bulk bins (about 500 kg)
- loose in retail bins of 300 kg called Fresh Pick. These apples are picked and graded in specially chosen high-performing orchards and go direct from orchard to market.
- (iii) loose in crates (15 kg nett).
- (iv) into tray cartons (18.5 kg).
- (v) premium apples in 2 kg plastic bags branded 'Orchard Crisp' varieties Golden Delicious, Braeburn, Granny Smith and Red Delicious. These contain a 'best before' date and are guaranteed.
- (vi) small apples (count size 150 to 175) in 2 kg plastic bags branded "Kiddi Pick".
- (vii) a new introduction this season was 'budget bins' of fruit containing undersized, oversized and low colour fruit at lower prices.

Storage

The NZAPMB monitors the calcium levels of its fruit. This is especially important with such varieties as Cox's Orange and Braeburn. To prolong the fruit life of these varieties drenching with calcium solution may be necessary; this helps to prevent breakdown of the cell walls.

The Granny Smith variety has a problem with scald (browning of the skin). To prevent this during storage the apples are either wrapped in special paper or drenched with DPA (Diphenylamine) solution.

To slow down the rate of respiration (and hence the ripening process) apples are coolstored. For most apple varieties the storage temperature is 0.5° C with the humidity greater than 85%. The high moisture level in the air prevents the fruit from drying out and so helps it retain crispness and juiciness. Two exceptions to the temperature of 0.5° C are Cox's Orange and Sturmer which are better held at 2.5° C.

Controlled Atmosphere (CA) storage is used in conjunction with coolstorage to prolong apple life by 2 to 3 months. In a CA store oxygen levels are <u>reduced</u> from the normal 21% to between 2% to 3% while carbon dioxide is <u>increased</u> from its normal 0.3% to levels of 2% to 3%. (The actual levels of oxygen and carbon dioxide depend on the variety.)

Apples are shipped by sea. Shipping is chartered and spread over 10 companies (in 1989 61 ships were used). The predominate method of sending apples is 'break bulk'. This is where each carton is individually stacked in the ship's refrigerated hold. To provide a longer supply of fruit and stagger the shipping smaller amounts of apples are:

- (i) CA stored, then shipped refrigerated.
- (ii) CA stored, then sent CA on ship.
- (iii) CA stored, then sent CA on ship, then CA stored at destination.

This enables a premium product to be marketed longer and prices to be maintained.

Some fruit is sent by container, mainly to ports with difficult access or where small volumes are required eg Pacific Region and the Caribbean.

Market and Product Research

Both the NZAPMB and the NZ Fruitgrowers Federation allocate funds for Research and Development. The main areas are:

- (i) Plant Breeding (by FIPIA, MAFTech and DSIR)
 - new varietes
 - improved disease resistance
 - adaptation to local conditions ie imported varieties
 - superior quality.
- (ii) Shelf-life improvement
 - genetic improvement
 - harvest dates
 - storage life
 - effect of nutrition, climate, and growth regulators and other chemicals on keeping qualities of fruit.
- (iii) Market Access
 - procedures necessary to gain access to new markets
 - maintaining existing access.
- (iv) Processed Products.

So the NZAPMB is concentrating its fresh fruit research effort on maintaining its variety range, and market related issues such as shelf-life, market access, crop forecasting and post-harvest care. This means there is little ongoing production and management related research.

Ideally with current marketing trends there is a need for a new variety every five years or so. The development of new varieties is a long term project, for example the Gala variety took 30 years to become established.

Currently the most promising new varieties come from crosses between Gala and Splendour. Splendour is a popular apple but has a thin skin which has a tendency to puncture and suffer from bruising. There have been nine selections made from the Gala/Splendour cross, the most promising of which is G-S 330. In nine years time this apple should be commercially established. At 21 years development this is considerably shorter than the Gala variety took. G-S 330 is a sweet apple with 90% red colouring. It is medium in size, has a thick skin, a long flexible stalk (less puncture marks)

and has very crisp, juicy flesh. It has a storage life of 16 to 26 weeks, compared with Cox's Orange which stores only 8 to 12 weeks.

The second most promising variety of these Gala/Splendour crosses is GS 48. This apply is stripey in appearance (more like Gala), has a thick skin and a sweet, crisp, juicy flavour like Braeburn.

Problems Within the Industry

The main problems within the industry as seen by the NZAPMB are:

- (i) Physical ability to handle the future crop.
- (ii) Financial constraints: maintaining a competitive advantage over the major competitors;
 Chile, Argentina and South Africa.
- (iii) Threat to industry structure that arises from substantial growth, especially from new entrants.
- (iv) Threat from Government officials and legislators on industry structure eg deregulation of the Board's monopoly.
- (v) Marketing: selling all the crop produced for the best return to the grower.
- (vi) Substitution: if Northern Hemisphere seasons are early (or late) this may cause an overlap of availability of local fruit (such as stonefruit) and imported apples. Consumers may buy (substitute) stonefruit instead of apples.
- (vii) Exchange Rate: hedging against exchange rate fluctuations is a major problem faced by the NZAPMB.
- (viii) Transport/shipping: co-ordination of crop and shipping and ensuring crop can be adequately transported to markets as required. Although as whole ships are chartered it does mean their destination can be altered should markets not be performing up to expectations (as happened several times this past season).
(iv) Maintaining product mix: most new plantings are in Gala, Royal Gala, Fuji and Braeburn. There is some concern that in a few years time the product range will get out of balance with insufficient volumes of standard varieties such as Granny Smith and Golden Delicious. This would weaken the Boards ability to market strongly to all important supermarket chains. Granny Smith especially are seen as of ongoing importance because of other countries difficulty in producing fruit of good size and colour (greener is considered preferable to pale). This variety is seen as profitable in the future.

Other Problems Connected with the Industry

- (i) Signals/advice to growers: as real market returns in the past were masked by Board payments there is now an excess production of particularly Red Delicious and Granny Smith varieties. It can be argued that in the past the Board was lax in not providing the proper advice about which varieties to plant. This now appears to be rectified but will be of little consolation for those growers whose real returns will be considerably lower this season.
- (ii) Lack of Communication: although more information is now sent to growers they need to be kept as fully informed as they can to make the best possible management decisions. One problem exists where growers have to make decisions regarding thinning of the next season's crop based on the past seasons optimum payments and size acceptances, not the coming season's limits.
- (iii) Accountability: the NZAPMB has been criticised because of its lack of accountability.
 Detailed information and statistics provided by it in the past have been rather minimal.
- (iv) Returns to Growers and Prices to Consumers: it has been argued that the marketing costs incurred by the NZAPMB are excessive in getting the product to consumers. For instance on the export market most varieties appear to be realising at least twice their MIR. Locally the MIRs appear very confusing as the price paid to growers for Red Delicious and Granny Smith was less than half that paid for Royal Gala and Braeburn. This was certainly not evident in the retail market. Obviously there must be much cross-subsidisation occurring in the local market, certainly not indicating "true market return".

- (v) Deregulation: there has been much lobbying by some large retailers to have the local market monopoly of the NZAPMB removed. The retailers argue that it would result in cheaper fruit to consumers (and no doubt larger margins for themselves). This would probably be true 'in season' but would mean that out of season stored fruit would be considerably more expensive. It is also highly likely returns to growers would be reduced and possibly the overall demand for apples would drop because of lack of continuity of supply throughout the year. Another problem that may arise through deregulation is quality control and standards.
- (vi) Factions within the Industry: because the main growing areas are Hawkes Bay and Nelson these areas have a greater representation on NZ Fruitgrowers Federation and so in the NZAPMB. This has caused problems with local factions pushing their own positions and not prepared to take a wider industry view. An example of this is transport cost subsidy removal which has hit some regions much harder than others.
- (vii) The dual roles of MAFTech and DSIR: these organisations compete for research funding and there appears to be a general lack of co-ordination even within the organisations. There has been a suggestion made that it would be better if they amalgamated into a "Fruit Research Institute" to carry out research; especially production and management research.

Market Trends (the Future)

World apple production was expected to increase dramatically but because of low returns to some countries, they will be very cautious about making ongoing large plantings.

New Zealand must maintain quality, especially as volumes increase and competition increases. Distribution control is also seen as extremely important; something which the NZAPMB is renowned for. Marketing is obviously another important area and New Zealand has advantages in its unique product mix and strict control over the use of chemicals.

Markets

(i) EEC/Europe

Over 70% of New Zealand fresh apple exports are sold into the EEC and Europe. Mainly

because of local over-production the Economic Commission (EC) has regulated imports on two bases:

- (a) Quota NZ is restricted to 130,000 tonnes per year (1989).
- (b) Size restrictions. Since August 1989 any fruit smaller than 65mm cannot be sold in the EEC although some varieties eg Cox's Orange are not affected. The main varieties that are affected are Gala and Royal Gala. This will mean these fruit will have alternative destinations.

New Zealand feels these import restrictions are unjustified for two main reasons:

- (a) NZ fresh high quality apples don't compete with EC stored apples.
- (b) Over half the exports will be of non-traditional varieties. At present demand for these varieties is strong.

All varieties of apples are sent to the EEC with middle to small sizes preferred. In the UK the sharp, spicey type of apple is preferred ie Cox's Orange and Sturmer Pippin. This is borne out by consumer research in Britain which showed that many British people can identify only two varieties of apples - Cox's Orange and Granny Smith. Other varieties such as Braeburn, Royal Gala and Fuji command premiums but don't appear that well known. (If they were known maybe the premiums would be higher.)

In 1992 EEC countries border accesses are to be opened up. This is seen as an advantage for New Zealand as product will be able to be moved freely within the EEC to where it can receive best prices.

The lack of other large markets such as the EEC is partly due to trade restrictions.

(ii) North America

This market has potential for further growth in some varieties although competition is intense. Chile and Argentina supply Red Delicious and New Zealand supplies

- Granny Smith (main variety)
- Braeburn
- Gala

larger sizes are preferred

- Royal Gala - Fuii

An opportunity that exists for this market is the waxing of apples - appearance is of utmost importance.

(iii) SE Asia

The main varieties exported to this market are Royal Gala and extra fancy Red Delicious with smaller sizes preferred. Taiwan, Thailand and the Phillipines have high import duties but with New Zealand's close proximity to these markets and its unique product mix it is ready to utilize any niches. One country in this region that has been targeted as an increasing market is Malaysia.

(iv) Other Asia

Japan and Korea have banned apple imports from NZ for phytosanitary reasons ie codlin moth. Protocol procedures to gain entry to these markets, especially Japan, have been underway for many years. It is hoped that next year (1990) will be the beginning of exports of apples to Japan.

China is a massive potential market. NZ is the only Southern Hemisphere exporter allowed into China but real problems exist with lack of foreign exchange there. New Zealand must be prepared to accept counter trade deals, for example, the NZAPMB has been trialling shipments of Ya Li or chinese duck pears to Europe and UK. Ya Li are niche marketed as they are seen as quite different to NZ pears.

The main apple variety exported to China is Red Delicious.

(v) Australia

Australia has banned the import of apples from NZ for phytosanitary reasons; namely the bacterial disease fireblight which exists here. New Zealand has been working on the protocol procedures necessary to export apples to Australia. This involves packing apples from "designated orchards". Growers must use a specific spray guide and the orchard must be at least 500 metres away from any fireblight hosts eg hawthorn, cotoneaster or pears. The apples must go through a designated packhouse ie on a fireblight-free property.

This market looks especially promising for Canterbury and Otago growers as fireblight is much less of a problem in these regions of New Zealand.

Growers on designated orchards supplying the Australian market will receive a premium to cover their extra costs.

(vi) Local Market

Up until 1988 the local market experienced static growth. In the 1988 year there was a 3% increase in sales and that was followed this year by a 10% increase in sales. This is considered to be attributable to a more co-ordinated marketing effort on the part of the NZAPMB. For example the development of the "Orchard Crisp" and "Kiddi-pick" brands as well as the "Fresh Pick" and "Budget" bins.

Overall the varieties increasing in demand are Braeburn, Royal Gala and Fuji. However there have been major plantings of late of these varieties so large volumes will become available for marketing over the next five years. Therefore new plantings have a probability of being paid at a comparatively lower rate than at present.

Other Developments

(i) Controlled Atmosphere Storage

This season (1989) 700,000 cartons of fruit were shipped to Europe using a new technique. A portable CA module is clipped onto the deck of a ship which allows fruit to be CA stored while in transit. This enables the crop to be in peak condition when it reaches its destination.

These CA units that have been developed by the NZAPMB are aircraft cargo-hold compatible so are flown back to be reused in another ship.

The advantage of portable CA modules is that they are owned by the Board so cannot be used for the transport of competitors' apples (as permanent CA holds on ships would be able to.)

It is thought that these modules have great potential for use with other produce eg kiwifruit.

(ii) Packaging System

A new method of packaging has been developed by UK scientists that extends shelf life of fruits, kept at room temperatures, to at least 14 days after leaving bulk storage.

The especially permeable plastic used, acts like a mini CA storage unit thus suspending the ripening process of the fruit contained in it.

Modified atmosphere packaging can be used on normal packaging machines and as the fruit are not kept chilled, condensation due to changes in temperature is not a problem.

This method of packaging is not yet used in New Zealand as it is still in the development stage.

Resources

Information Pack: Pipfruit, MAF New Zealand Apple and Pear Marketing Board Annual Reports Situation and Outlook for NZ Agriculture, MAF Plant Breeding in New Zealand, eds Watt and Smith Farm Monitoring Reports - MAF Fruit Research Committee Annual Reports The Orchardist Horticulture News

Acknowledgements

NZAPMB NZ Fruitgrowers Federation MAFCorp Growers



BARLEY



Background of the Industry

Barley is the world's fourth largest cereal crop (after wheat, rice and maize) and is probably the oldest cultivated cereal. Barley has a wide adaptability of use such as in stockfoods, in malting (for beer brewing) and in some countries to produce flour.

Barley has been grown commercially in New Zealand since the early 1860's. Up until this date barley was grown privately throughout New Zealand (even in the middle of Auckland) for the small privately owned breweries, and to feed pigs for home consumption.

The 1860's saw a rapid development of barley growing especially in Canterbury and Otago. By 1867 Hancocks Brewery in Auckland was buying 225 tonnes of barley from Canterbury each year for malting.

Up until the 1940's the area and production of barley were tied to population numbers and the production of beer. At this stage about 80% of the barley grown was malted for brewing and the remainder used as feedstuffs.

From the 1940's until the early 1980's the utilisation trend reversed so that most barley was grown as a stock food. Also associated with this was a large increase in the production of barley.

Production

Barley is grown in New Zealand for seed, feed, and malting.

It constitutes about 40% of the total feed grains and is used as a base for most stock foods.

- for poultry; more for layers than broilers
- for pigs; barley is the preferred grain in pig nutrition helping to produce a pigment free body fat with a firm consistency.
- as a general stock food; for cattle sheep and deer for supplementary feed in winter or drought feeding.

Barley is used exclusively for malting ie the production of malt mainly for the brewing industry.

Some attributes of high quality malting barley are:

- (i) Grain thoroughly ripe.
- (ii) Starch/protein ratio; high starch, low protein.
- (iii) Good germination capacity.
- (iv) Large grain size.
- (v) Thin husk.

Some of the attributes of high quality feed barley are:

- (i) Good grain size.
- (ii) High in carbohydrate.
- (iii) Husk not too thick.

Table 2.1: Area and Fields of Barley Threshed by Local Government Region

	For the year 30 June 198	ended 6	year ended 1989			
Local Government Region	Area Threshed Ha	Total Yield Tonnes	Area Sown Ha	Total Yield Tonnes	Area Sown Ha	Total Yield Tonnes
North Island						
Northland	68	180	46	120	47	127
Auckland	129	461	126	- 453	83	344
Waikato & Tongariro	571	1943	300	1,262	503	1,655
Thames Valley	50	198	8	33	10	38
Bay of Plenty	9	36	14	56	14	60
East Cape	150	665	187	780	215	741
Hawke's Bay	3,063	12,320	2,083	8,110	1,338	5,799
Taranaki	268	1,142	147	565	149	750
Wanganui	6,990	27,133	6,184	25,934	5,504	26,872
Manawatu	7,882	30,027	6,049	23,546	4,589	20,042
Wairarapa	3,353	12,314	1,853	7,352	1,322	5,982
Horowhenua &						
Wellington	304	1,265	1 79	738	135	637
Total North Island	22,737	87,684	17,176	68,949	13,909	63,047
South Island						
Marlborough	2,532	10,148	1,801	7,864	1,227	4,939
Nelson Bays	445	1,401	310	1,340	242	927
West Coast	-	-	-	-	-	-
Canterbury	29,431	111,077	21,843	77,756	18,232	72,251
Aorangi	54,050	208,295	40,493	148,569	32,855	133,808
Coastal North Otago	10,159	39,747	7,599	29,992	5,194	21,781
Clutha-Central Otago	7,071	34,005	5,548	26,959	4,218	22,017
Southland	12,146	63,838	7,713	39,216	7,084	37,285
Total South Island	115,814	468,511	85,307	331,696	69,052	293,008
Total New Zealand	138,551	556,195	102,483	400,645	82,961	356,055

Source: Agricultural Statistics

NB: All statistical figures in this report refer to the statistical year ie 1989 Figures are for 1 July 1988 to 30 June 1989.

The worldwide importance of barley has lead to the development of many cultivars. Quite a number of these have been imported into New Zealand and assessed. The main cultivars currently grown in Triumph (for malting) Goldmaker Kym.

The actual varieties grown in different regions are dependant upon local environmental conditions.

The main growing areas in New Zealand are Canterbury, Aorangi, Otago, Southland, Manawatu and Wanganui (see Table 2.1). Over the years the regions growing barley have changed from those initially serving local needs to the current situation where barley is grown in regions where it provides better returns than alternatives.

Industries centred around barley have developed close to the main growing regions principally because of high transport costs. Stock food manufacturers have plants situated throughout New Zealand. The Canterbury Malting Company has factories at Heathcote (Christchurch) and at Marton (in the North Island). The Canterbury Malting Company's expansion into greater malt production is limited by its plant production facilities more than anything else.

Transport costs associated with exporting have also been a major determinant of the regions where barley is now grown. For example it is only in the last ten years that areas such as Gisborne and Southland have been able to increase planting. This is because of their close proximity to ports and the increase in returns of barley exports. See Fig 2.1.



Fig 2.1: Time Line of Area and Yield of Barley

Source: Agriculture Statistics

Structure of Marketing Channels

Fig 2.2: Barley Marketing Channels



----- Malting barley - - - Feed barley

Grower Options

NB: All prices paid are ex mill ie grower pays delivery.

The options available to growers are:

- 1. Grow and sell to the highest bidder.
- 2. Grow under contract to Stockfood Manufacturer directly.
- 3. Grow under contract to Stockfood Manufacturer via Merchant.
- 4. Grow under contract to Malting Co.
- 5. Grow under contract to Farmlands Grain.

Within the contracts there are several possibilities:

- (i) Forward contract: an advance payment (interest charged) at planting based on area planted, followed by an interim payment at harvest (also interest charged) when the quality has been assessed. Then a final payment (March based) when the pool has been sold and averaged out.
- (ii) An interim payment at harvest followed by a final payment when the pool is sold.
- (iii) Back to back or Participation Contract: growers commit an area but not in the pool. The growers decide when to sell; they can still get advance payment (about 10% of estimated price) if they want it. There is obviously a limitation with this type of contract when it comes to exporting.

Sales Arrangements and Pricing

Local Market

The local market price for malting and feed barley is largely determined by the contract price for malting barley set by the Canterbury (NZ) Malting Co and this is determined by overseas grain prices. As malting barley has a premium of \$20 to \$35 per tonne the stockfood companies use the malting barley price as a basis for their contracts. For example in Canterbury the 1989 (planting) Malting contract price is \$240 tonne (ex Ashburton or Rakaia) or \$250 tonne (ex Heathcote). Figures from stockfood manufacturers for 1989 planting (1990 Harvest) on contract vary from \$210 tonne to \$235 tonne ex mill. These figures are gross payments to growers, are May 1990 based, and do not have merchant commission charges (if any) taken out.

The 1989 Harvest in Canterbury was interesting as even though growers were contracted at a fixed price eg \$170 tonne, the scarcity of barley caused by drought conditions meant some companies increased the price to \$210 tonne after harvest to ensure supply.

Acting as a ceiling on barley feed prices are the prices of other grains; in particular wheat. As feed barley does not have the same energy value as wheat it doesn't command as high a price.

Export

New Zealand barley is selling in competition with major exporters such as Canada, Australia and USA. However the Australian harvest is finished 2-3 months ahead of New Zealand while the Northern Hemisphere crop is still 6 months away.

Barley constitutes about 10% of the total world coarse grain market. The International price of barley is set largely by the price of US corn (maize) which is far greater in volume and which for many users is interchangeable with barley. However there are some end uses where corn cannot be substituted for barley eg malting, and for this reason barley frequently commands a premium over corn.

The export barley crop is sold to International Grain Traders. Sometimes there is personal contact with an end user eg a brewer, but on some occasions ships are loaded with their ultimate destinations unknown.



Fig 2.3: Exports of Barley (Approximate)

Source: Farmlands Grain

As illustrated in Fig 2.3 exports of barley vary considerably. This is caused by fluctuations in overseas prices or local demand and prices.

This past season (1989) saw a massive decrease in exports which are usually about 25% to 30% of the total production. The decrease was due to high local demand for feed and malting barley because of low amounts of production caused by drought conditions. Much of the barley destined for export was sold on the local market as it realised much higher prices. Table 2.2 illustrates the major destinations of exported barley for the 1987/88 year.

About 20% of the malt produced by the Canterbury Malting Company is exported (mainly to Japan). This had an FOB value of over 2 million \$NZ in the 1987/88 year.

Table 2.2: Export Amounts and Destinations of Barley for the 1987/88 Year.

Destination	kg	F.O.B. (NZ\$)
Taiwan	27,500,000	3,289,500
Germany, Federal Republic of	26,500,000	4,605,000
Chile	23,414,730	3,884,700
New Caledonia	864,160	139,236
Sweden	179,200	63,616
Papua New Guinea	147,520	27,871
	\$78,605,619	\$12,009,923

Source: Department of Statistics Export Data.

Farmlands Grain have been the main exporter for the past few seasons.

Organisations and Groups Affecting the Industry

Fig 2.4: Organisations Affecting the Barley Industry



Organisations and Groups Affecting the Industry

Merchants

Merchants are involved with selling seed, fertiliser and equipment to producers, and providing them with information regarding the crop. Merchants also buy and sell barley by negotiating contracts with Stockfood Manufacturers and the Malting Company. Merchants act as commission agents and their fee is usually \$10 a tonne, or 3% in some cases. Some of the merchants in the Canterbury area are:

Challenge/Wrightsons Hodder & Tolley/Elders, and Pyne Gould & Guiness.

Cereal Exports (NZ) Ltd

This is a consortium of merchants who export barley. The amount exported varies depending on the prices barley is realising overseas. Cereal Exports Ltd may also trade on the local market if the demand exists.

Farmlands Grain Society

Farmlands Grain is a co-operative that started out with the objective of maximising returns to growers. It was originally called the South Island Export Barley Society and then the South Island Barley Society as they became involved with the local market. As their marketing skills were called upon in other areas eg, wheat, oats, maize and small seeds they changed their name to the current one; Farmlands Grain.

To supply Farmlands Grain growers must be members of the Society. (To become a member they need to take out 500 \$1 shares).

Farmlands Grain sells barley on behalf of its members to the Malting Company (sometimes) and Stockfood Manufacturers locally, and exports both feed and malting quality barley. It operates a 'pooling' system of payments so that the average market returns less costs are paid to growers.

Stockfood Manufacturers

Stockfood Manufacturers buy barley via merchants, Farmlands Grain or directly from growers (usually contracted). Stockfood Manufacturers are based on locality ie close to the main growing regions.

Some of the manufacturers in the Canterbury region are:

NRM Feeds Ltd Supastock Feeds Ltd Integrity Feeds Ltd W E Saunders and Co, and H Archer and Sons.

Malting Company

The Canterbury (NZ) Malting Company has two factories, one in Christchurch and the other in Marton. It contracts out to growers for the supply of barley it requires. The Malting Company sets its malting barley prices based on past prices as well as future world prices. This effectively has an onflow to barley feed prices.

Federated Farmers (Cereal Grains Advisory Committee) This group represents growers interests in the industry.

MAFTech

Involved with consultancy work and research.

MAFCorp

Responsible for policy, monitoring and market forecasts in the industry.

MAFQual

Ensures phytosanitary regulations regarding exports are met.

DSIR - Department of Scientific & Industrial Research (Crop Research Division) Involved with research and evaluation of new cultivars.

Quality Control, Grading and Storage

Quality Control is basically undertaken by the grower. This is an ongoing process that starts at planting and ends (for the grower) when the barley leaves the farm gate. If barley is not of sufficient quality it will be downgraded and returns will be less.

Harvesting is crucial to the overall quality management process. When harvested the grains must have the correct moisture level (no more than 14%) or they will require drying. For malting barley any damage to grain during or after harvest will mean the grain probably won't germinate. This can happen either by physical damage to the embryo plant or by damage to the outer layer of the grain. Outer layer damage means the grain absorbs water too quickly and dies through lack of oxygen while other grains are still steeping. Pre-sprouting caused by warm damp weather in the field at harvest time also prevents proper germination during the malting process.

Grading

Barley for malting has a minimum width of grain. The New Zealand standard allowable percentage of grains smaller than 2.38mm is 5% (called screenings). Many European maltsters only accept malting barley if it contains at least 90% of grains greater than 2.5mm and 50% greater than 2.8mm.

Feed barley standards vary a little from merchant to merchant but in general discounting occurs when screenings are greater than 20% (based on 63 kg per hectolitre). The samples must be free of noxious weed seeds and dirt, and the maximum allowable weed seeds are 0.5%.

Storage

It is extremely important that storage containers are fumigated before filling so any possible pests or diseases are destroyed.

Barley grains are stored with a maximum moisture content of 14% and at low storage temperatures. Malting barley stored in this way will maintain its germinating quality for 15 months. Lower storage temperatures are achieved by the combination of inverted cone vents in the base of the storage tanks and aeration fans to move air between the grains.

Any damaged or moist grains encourage the development of moulds and any residual storage pests.

Growers are expected to store barley once it is harvested until it is required. Stored barley attracts a premium of \$2.50 (1989 value) per tonne per month - paid from May by Merchants, from March by Farmlands Grain.

Market and Product Research

As barley is a crop of international importance, there has been considerable research into increasing especially yield and quality.

Research Division

The Crop Research Division, DSIR has made large contributions in this area with the result that yields have doubled over the last 40 years or so (See Fig 2.5).



Fig 2.5: Time Line of Yield Per Hectare

Source : Agriculture Statistics

Research is ongoing to further increase yields and quality especially in malting barley.

The parameters of an ideal barley grain for New Zealand conditions are fairly clear and breeders and researchers are working towards this. As well research is being carried out here to develop barley types for conditions for other parts of the world.

Research has been especially limited of late with current Government policy and as barley is not a major export earner it is feared that in future most work will be demonstration rather than pure research.

Problems within the Industry

Currently there is no official barley growers association. This may be remedied next year (1990) with the proposed introduction of the Commodity Levies Act. Under this Act growers will be able to form an association and impose a levy. This will mostly go to fund research.

Internal freight costs are a major problem that restrict the use of barley in different areas of New Zealand. For example in February 1989 the cost of transporting oats from Gore to Hamilton was \$130 per tonne. As a comparison shipping rates for grain from USA to NZ are \$40 per tonne and from Australia to NZ \$50 per tonne.

The biggest growing areas are in the South Island with the largest users in the North Island.

Production can change dramatically from year to year as entry costs to the industry are very low. That is growers can switch in or out easily and quickly. This leads to lack of continuity of supply which makes it difficult for exporters trying to maintain markets.

International price fluctuations cause problems for exporters (and growers) trying to maintain a regular market. This is one of the reasons why New Zealand has exported only malting barley in the past two seasons.

Merchants have problems at times with growers not meeting contractual arrangements. This had lead to contracts on tonneage rather than area with a ten percent balance either way. This past season prices increased throughout the year due to drought induced lower yields. Consequently higher prices were received by those growers who sold on the open market rather than sticking to their contract.

An ongoing problem for the export industry is fluctuations in the value of the NZ dollar, and (according to them) its high value compared with the US dollar.

Market Trends (the future)

Although world grain consumption is increasing the medium term outlook on the international market is for depressed grain prices. This is mainly due to overproduction especially from those countries subsidising grain production eg EEC and USA. However malting barley prices may not be markedly affected as malting barley doesn't have any substitutes ie products that can be used instead of it. If New Zealand is able to exploit a niche market through the development of a better cultivar of malting barley for example then the viability of barley exports would be assured.

On the local market several developments are likely to increase the demand for barley.

- (i) The deregulation of the poultry industry; this will reverse demand for feeding barley, (mainly in the North Island).
- (ii) The lifting of limitation of beef imports on the Japanese (and Korean) market. Japanese prefer grain-raised beef and barley is a major component of stockfoods.
- (iii) Increase in exports of live animals. As these increase so does the demand for stockfood.
- (iv) There has been some discussions about the possibility of building another malting factory in New Zealand. Such a plant could be situated either in Southern Canterbury or Otago/Southland.

Already the 1990 season is looking positive for growers as contracts are up \$30 a tonne or so.

The destocking of many South Island farms because of past droughts and the associated costs of restocking means that many farmers will plant increased areas in crops (especially barley).

Resources

Barley: Production and Marketing, Agronomy Society of New Zealand, Special Publication No 2. Plant Breeding in New Zealand, eds Watt and Smith.

Agricultural Statistics, Statistics Department.

NZ Year Book.

Situation and Outlook for NZ Agriculture, MAFCorp.

Farm Monitoring Reports - MAF.

45

Acknowledgements

Farmlands Grain Cereal Exports Ltd Merchants Stockfood Companies Growers



Background of the Industry

There are very few records of the early introductions of summerfruit (stonefruit) into New Zealand. It is interesting that the first settlers who arrived in New Zealand in 1814 found wild peaches growing alongside several North Island Rivers. These groves were thought to have been planted by earlier visitors; either Captain Cook (in 1774 or 1779) or by one of the whaling or sealing gangs that visited New Zealand around 1792 onwards. These so called "Maori peaches" were decimated by diseases introduced with nursery stocks in the early 1900's.

The first record of an orchard of summerfruit being planted was in 1840 and nurseries soon developed to meet a demand for trees. There has been a constant flow of cultivars into New Zealand ever since, as most summerfruit breeding is done in other countries, eg USA/Canada. The main types of summerfruit are nectarines, peaches, apricots, cherries and plums.

Peaches and nectarines have a wide and general appeal as fresh fruit. They are also suitable for processing in a number of ways eg canning. Nectarines and peaches are mainly trees of temperate zones. The leading producers in the world are Italy and USA; others of importance are China, Southern Russia and parts of Asia. In the Southern Hemisphere the main producers are Chile, Argentina, Brazil, South Africa and Australia.

Apricots are widespread in the world but are only important in restricted areas with suitable climatic conditions. Apricots are eaten fresh, dried or canned. The largest apricot producers are the Soviet Union and eastern European countries.

Plums are grown throughout the world. The largest three producers are Yugoslavia, West Germany and USA, followed by France, Italy, Austria, UK, Spain, Turkey, Argentina and Japan. Plums are eaten fresh, canned or dried into prunes.

Cherries are a popular fruit grown in most temperate regions of the world. The leading producers are USA and Europe (Italy).

Production

Cultivars/Varieties

Some of the main cultivars/varieties are: (these will vary from district to district as there are many different varieties)

Nectarines:	early	Maygrand					
		Springred					
		Firebrite					
		Red Diamond					
	mid	Flavortop					
		Redgold					
		Fantasia					
		Late Fantasia					
	late	Fairlane					
Peaches:	early	Earlycrest (new sport of Springcrest - Italy)					
		Springcrest					
		Dixired					
	mid	Redhaven					
		Flamecrest					
		Early O'Henry					
		O'Henry					
	late	Cal Red					
Apricots	early	Sundrop (Canada)					
		Valleygold or V66052 (Canada)					
		Cluthagold (DSIR NZ Sundrop x Moorpark)					
		Moorpark					
	late	Trevatt					
Cherries		Dawson					
		Bing					
		Stella					
<u>Plums</u>		Wilson's Early					
		Doris					
		Black Doris					
		George Wilson					

In New Zealand summerfruit are important on the fresh fruit market and for processing (drying, canning and glacéed). The climate allows a full range of summerfruit to be grown. Apricots and cherries require low rainfall and a defined winter period to satisfy their chilling requirements. These crops are grown mainly in Central Otago and Marlborough although the development of new lower chill apricots has meant Hawkes Bay is now a major production area. (See Table 3.1.)

Nectarines and peaches have less specific requirements so are grown in most areas of New Zealand. The major plantings of peaches are in the Auckland, Hawkes Bay and Central Otago regions, while the major nectarine plantings are in Hawkes Bay, Canterbury and Central Otago. (See Table 3.1.)

Fig 3.1 illustrates the areas in production over the last six years. Prior to 1985 areas planted steadily rose. Since then they have remained relatively stable. The only increases in this time have been in cherries and apricots, two crops whose production is very much affected by climatic conditions.

Predicted plantings were considerably greater than this but poor returns and poor seasons have limited further developments.





N.B. No figure for cherries 1983

Source : Agriculture Statistics

NB: All statistical figures in this report refer to the statistical year ie 1989 Figures are for 1 July 1988 to 30 June 1989.

	Peaches		Ap	ricots	Р	lums	Nect	ctarines Cherries		Other Stonefruit		Total Stonefruit		
LOCAL GOVT REGION	ha	tonnes	ha	tonnes	ha	tonnes	ha	tonnes	ha	tonnes	ha	tonnes	ha	tonnes
Northland	38.5	108	3.9	7	15.5	39	13.2	23	-	-	-	-	71.1	177
Auckland	188.8	442	6.2	4	86.2	418	66.6	101	-	-	13.2	11	361	976
Waikato	65.3	210	0.7		12.7	58	54.9	170	1.2	-	-	-	134.8	438
Tongariro	0.6	-	0.5	-	2.0	-	-	-	-	-	-	-	3.1	-
Thames Valley	23.7	38	8.1	2	4.3	4	12.7	13	0.1	-	-	-	48.9	57
Bay of Plenty	52.6	172	9.3	3	8.8	23	50.8	74	0.8	-	6.8	80	129.1	352
East Cape	26.1	111	8.5	1	2.6	5	27.5	66	0.2	-	6.2	2	71.1	185
Hawke's Bay	450.6	<u>4933</u>	116.6	292	99.5	876	435.5	2986	21.1	23	11.4	64	1134.7	9,174
Taranaki	1.0	-	-	-	0.6	2	0.7	-	-	-	0.1	-	2.4	2
Wanganui	5.3	24	12.8	29	1.2	4	24.4	41	-	-	0.4	-	44.1	98
Manawatu	7.7	30	8.8	18	1.2	3	8.8	29	0.3	-	0.5	-	27.3	80
Wairarapa	4.3	15	4.8	1	5.7	21	14.0	62	-	-	1.5	2	30.3	101
Horowhenua & Wellington	5.3	5	1.6	-	4.8	3	4.5	4	0.8	-	-	-	17	12
Marlborough	10.0	50	72.8	246	2.2	10	37.8	149	142.3	308	2.2	23	267.3	786
Nelson Bays	37.3	344	22.5	41	9.3	26	32.5	230	0.1	-	4.6	-	106.3	641
West Coast	.5	-	-	-	0.2	-	0.2	-	-	-	-	-	0.9	-
Canterbury	79.4	402	37.1	82	8.7	37	105.1	424	10.3	5	9.0	45	249.6	995
Aorangi	11.3	3	2.8	-	1.5	2	8.8	13	0.2	-	13.0	29	37.6	47
Coastal North Otago	7.4	41	25.4	23	3.7	2	8.2	22	1.0	-	-	-	45.7	88
Clutha - Central Otago	133.4	808	488.9	3278	58.6	229	243.1	1645	80.3	158	2.7	5	1007	6,123
Southland	1.0	-	0.7	-	1.0	-	-	-	-	-	-	-	2.7	-
TOTAL NEW ZEALAND	1150.1	7736	832	4027	330.3	1762	1149.3	6052	258.7	494	71.6	261	3792	20,332

Table 3.1: Summerfruit Production (tonnes) and Area Planted (Hectares) at June 1988

Source: Department of Statistics

52

	Total Production Area (hectares)	Total Produced (tonnes)	Amount Exported (tonnes)	Export Value FOB \$
Nectarines	1,149	6,052	1419.5	3,045,553
Peaches	1,150	7,736	260.5	539,891
Apricots	832	4,027	221.4	674,478
Cherries	259	494	28.0	71,903
Plums	330	1,762	57.8	509,669
Totals	3,720	20,071	1987.2	4,871,494

 Table 3.2: Total Production Values and Exports of Fresh Summerfruit (Year to June 1988)

Source: Department of Statistics

NB: These values do not include 'Other Stonefruit'.

Local Market

Table 3.2 illustrates how important the local market is to the Summerfruit Industry with the majority of summerfruit sold locally. There has been an unpredicted local market increase in consumption over the past few years especially this past 1989 season.

All summerfruit destined for the local market is picked and packed by the individual growers and sent to the relevant destination. This may be directly to a broker, wholesaler, retailer or to the auction floor.

Export Market

Fig 3.2 shows the increase in exports of fresh summerfruit over the past ten years. From a high of nearly 3,000 tonnes in 1987, the past season's (1989) exports were about 2,500 tonnes.

The proportion of individual products exported in the 1988 year were:

Nectarines about 23%

Apricots and cherries about 5%

Peaches and Plums about 3%



Fig 3.2: Exports of Fresh Summerfruit

Source: Statistics Dept.

So nectarines are by far the largest export earners (see also Fig 3.3).

Exporters licensed by the Horticulture Export Authority (HEA) negotiate and purchase product direct from growers and assume responsibility for transporting and marketing the produce. Most summerfruit is presold by exporters to agents overseas. Within each type of summerfruit there are about ten licensed exporters but the four main exporters are:-

Fruitfed Exports Ltd KiwiHarvest Ltd S & L Lai Ltd Turners and Growers Exports Ltd

The major export market for summerfruit is Australia. Other markets of importance are Japan, the Middle East and USA. For individual product markets for the 1988 and 1989 years see Table 3.3.

Table 3.3: Destination and Value of Exports of Fresh Summerfruit

NECTARINES					PEACHES										
COUNTRY	1987/88	1987/88	1988/89	9 1988/89	COUNTRY	1987/8	8 1087/88	1000/0	0 1000 (00	APRICOTS			1000/00	1022/20	
	TOTAL	TOTAL	JUL - JUN	JUL - JUN		TOTAL	TOTAL		9 1988/89	COUNTRY	1987788	1987/88	1900/09	1900/07	
	KG	FOB(NZ\$)	KG	FOB(NZ\$)		KC	EDBCUZEN	JOL-JUN	JUL - JUN		TOTAL	TUTAL	JUL-JUN		
							100(1123)	KG	FOR(N72)		KG	FOB(NZ\$)	KG	FUB(NZ\$)	
AMERICAN SAMOA	100	157	92	320	AMERICAN SAMOA	0	5 775	17			-		•	0.	
AUSTRALIA	1272278	2694423	1759009	4445070	ALISTRAL LA	10074	J JJJ 7 775070	20574	5 519	AMERICAN SAMOA	0	59	0	U 77907	
AUSTRIA	275	1134	0	0	AUSTRIA	17040	3 3/3030 F 7F/7	205314	491889	AUSTRALIA	160627	479130	190097	437807	
BELGIUM	3695	14375	0	0		00	· · · ·	() 0	CANADA	0	220	0	U	
CHINA, PRC	0	0	24	112	CRINA, PRU	-	0 0	28	3 112	CHINA, PRC	0	0	25	112	
COOK ISLANDS	10	35	699	1706	COOK ISLANDS	5	2 106	3484	7092	COOK ISLANDS	0	0	221	517	
FIJI	383	1273	0	0) ()	11746	18786	FIJI	4	31	0	0	
FRENCH POLYNESIA	515	1391	840	2769	FRENCH POLYNESIA	132	5 4528	84	179	FRENCH POLYNESIA	382	3112	0	0	
HONG KONG	1125	2500	8890	28089	NETHERLANDS	120	5 330	0	0	HONG KONG	790	3401	75	625	
JAPAN	13746	14671	8918	36123	NEW CALEDONIA	1460) 4962	4519	15663	KUWAIT	2900	6872	0	0	
NEW CALEDONIA	1812	6568	7787	35813	SINGAPORE	3332	2 7009	4472	11275	NETHERLANDS	419	1480	0	0	
SAUDI ARABIA	59918	140592	19489	41088	SWITZERLAND	2808	9394	80	244	NEW CALEDONIA	744	2287	251	2504	
SINGAPORE .	3684	9378	0507	30944	IONGA	· () 0	572	1231	SINGAPORE	85	480	540	1600	
SWITZERLAND	0	n	84	250	. UNITED KINGDOM	0	0	3744	10116	SWITZERLAND	0	0	21	. 90	
TAIWAN	ů N	ů n	2808	6976	USA	59992	134634	10111	24520	THAILAND	4	14	. 0	0	
THATLAND	16	<u>41</u>	2000	0070						USA	55021	177052	27017	75748	
UNITED KINGDOM	6840	28800	1759	(050	TOTAL	260498	539891	244280	581626	WALLIS & FUTUNA ISLAN) 147	340	0	Ū Ū	
lisa	55072	120150	407/2	4939											
WALLIS & FUTUNA ISLAND	10	130130	09342	111393						τοται	221403	674478	218247	519003	
WALLIO & TOTORA ISLAND	. 10	43	U	U											
TOTAL	1/ 10/ 70	70/5557	4000777		CHERRIES	,									
	1419479	3043333	1889337	4809523	COUNTRY	1987/88	1987/88	1988/89	1988/89						
					·	TOTAL	TOTAL J	UL-JUN 、	JUL - JUN						
PLIMS						KG	FOB(NZ\$)	KG I	OB(NZ\$)	Source:	Dept	of St	atistic	S ·	
COUNTRY	1087/88	1087/88	1088/80	1088/80											
oodinner .	TOTAL	TOTAL	110 - 111	1700707	AUSTRALIA	24595	154777	70627	498086						
	rc	EOR (N7C)	VC	SOL-JUN	BELGIUM	360	2700	0	0						
	ĸū	FUD(N2⊅)	KŪ	FOB(NZ⊅)	CHINA, PRC	0	0	11	97						
AMEDICAN SAMOA		0	74	105	COOK ISLANDS	54	640	19	122						
ANCELEAN SAMUA	2/72	5700	21	125	FRENCH POLYNESIA	580	4639	964	7150						
AUSTRALIA	2472	2224	0	0	GERMANY, FRP	0	0	852	5720				•		
COUR ISLANDS	19	40	167	552	HONG KONG	400	1732	499	3437			•			
	9	-39	0	0	JAPAN	15879	269603	49671	860810						
FRENCH POLTNESIA	2565	9054	1157	4409	NEW CALEDONIA	342	1421	371	4265						
JAPAN	22023	54486	0	0.	SINGAPORE	2019	13393	5366	48323						
NEW CALEDONIA	794	2457	1728	9359	TAIWAN	6207	25622	5730	15994						
SWITZERLAND	0	0	105	441	THAILAND	4671	24669	0	0						
USA	55	182	174	764	UNITED KINGDOM	6	70	24	208						
WALL'IS & FUTUNA ISLAND	57	246	0	0	USA	2741	10403	2442	23160						
								2402	23140						
TOTAL															

.

55



Fig 3.3: Export Values of Individual Fresh Summerfruit (F.O.B.)

Source: The Orchardist

Structure of Marketing Channels of Summerfruit

Fig 3.4: Marketing Channels of Summerfruit



Grower Options

A grower has the following options.

A. Local Market

- (i) Send to the central marketing system (ie auction floor) to be auctioned. This is by far the most common channel.
- (ii) Send to the central marketing system for a negotiated fixed price.
- (iii) Direct supply to brokers for a negotiated fixed price.
- (iv) Direct supply to a wholesaler for a negotiated fixed price.
- (v) Direct supply to a retailer for a negotiated fixed price or under contract.
- (vi) Gate sales from the orchard
 - picked
 - pick your own.
- (vii) Sale to processors which may be under contract or for spot market prices eg peaches, apricots and plums.

B. Export Market

Sell directly to exporters or their agents.

The Central Marketing Systems

The Central Marketing System has an auction market in most cities. Early season sales of summerfruit are mostly through the auction system with more negotiated sales in the peak of the season. Negotiated sales are based on auction prices even though they are not part of the system.

Central marketers say the advantage of their system is that produce is exposed to more buyers than is selling direct.

There is an increasing tendency for large retailers eg supermarkets to buy outside the auction system, ie bulk buying at fixed rates from growers, merchant distributors (via auction floor) and private brokers. Large retailers argue they can obtain more regular supplies and have better quality by avoiding the auction system. They see quality (including freshness) as the greatest priority with the next being price.
Sales Arrangements and Pricing

Local Market

- * Central Marketing System
- (i) Auction

Most local market sales are completed via the auction floor. Growers send their produce to the Central Market where it is sold each morning. The commission charged (the grower) for this service is 10%. Auction markets can have two philosophies:

- Floor clearance: whatever produce comes onto the market floor is cleared for whatever price it receives.
- Regulating supply: some auction markets attempt to smooth supplies by keeping back produce in coolstores (especially good quality) when the market is 'flooded'.
- (ii) Set Price

The Central Marketing System also acts as a distribution centre; selling at a fixed price. For this service the commission charged is 10%. Local market prices are driven by supply and demand and do not always reflect the quality of the produce. For instance if a large amount of low quality produce arrives at the market the same day as a line of good quality produce then there is a downward effect on prices. Prices fluctuate widely even from day to day for some produce. This past season the local market demand for summerfruit was much greater than anticipated and prices were firm.

Unless a grower has negotiated a fixed sale she/he will only have a rough idea of the possible price. Prices received on different auction markets vary widely so the grower must make decisions about where the fruit is to be sent, how much to send, relevant transport costs and the anticipated returns. Growers usually adopt one of two strategies.

- cover as many local markets as you can.
- put all your produce into one market (usually if it is showing good prices or if transport costs to other markets are excessive).

* Direct Supply

Set prices and negotiated before supply to either Brokers, Wholesalers or Retailers.

Export Market

There are two basic payment systems offered to growers by exporters. Some exporters may use one or the other or both.

- (i) Set price exporters give growers an indication what they think the price will be and once it is consigned a firm price is given. In this system the exporter takes more risk and the grower receives prompt payment eg Turners and Growers.
- Pooling exporters indicate to growers what price they anticipate the produce will realise.
 Payment is on a weekly pooled price less 10% for handling eg Fruitfed Exports.

As a guide the current level of payments to provide economic returns to growers for export summerfruit are:

Peaches and Nectarines	- at least \$6.00 to \$6.50 a 4 kg tray
Apricots	- at least \$9.00 a 4 kg tray
Cherries	- at least \$6 kg

Levies

Growers are liable under the Orchard Levy Act for payments of \$25 per hectare with a minimum of \$120 (4.8 ha) and a maximum of \$1,000 (40ha). This goes to fund the NZ Fruitgrowers' Federation.

Currently growers are also levied (on a voluntary basis) 4% of their returns from summerfruit. This money is used to fund promotion and research. As this levy is voluntary it has created problems with "freeriders"; that is those not willing to pay the levy but willing to reap the benefits of promotion and research.

It is hoped that this problem will be resolved with the introduction of the Commodity Levy Act next year (1990). This act will allow primary industries to impose compulsory levies on their members. With this act in place the Fruitgrowers' Federation feel the levy will provide sufficient funds if set at 3%.

Also all growers exporting summerfruit must pay a fee to the Summerfruit Export Council (SEC). A grower exporting:

less than 5,000 4 kg trays of peaches, plums, nectarines or apricots and/or less than 45,000 kg of cherries will for the 1989/90 season pay \$150 plus GST if more than above (cumulative) the fee is \$300 plus GST.

Organisations Affecting the Industry





GROWER ASSOCIATIONS - local groups of growers.

NZ FRUITGROWERS FEDERATION (Summerfruit Sector Committee):- represent the interests of growers and is funded by them. The NZ Fruitgrowers Federation co-ordinates promotion and research of summerfruit.

FIPIA NZ (Fruit Industry Plant Improvement Agency):- FIPIA was formed by the NZ Fruitgrowers Federation and the NZ Apple and Pear Marketing Board. Its main task is the development and improvement of <u>desirable</u> fruit tree varieties and rootstocks.

MAFCorp:- Acts as the policy area of the Government advising it on legislation and marketing matters.

MAFQual:- Ensures that phytosanitary (pests and diseases) regulations and quality standards are met. They also review quality assurance manuals and run workshops on quality management.

MAFTech:- Involved with research and consultancy work.

DSIR:- Department of Scientific and Industrial Research. Involved with product development and research.

FRUIT RESEARCH COMMITTEE (FRC):- Operates under the auspices of the DSIR. The FRC is made up of representatives of growers, DSIR, MAF, Universities, NZAPMB and the Kiwifruit Board. The aim of the FRC is to act as a pressure group to ensure Government continues to adequately fund research. The FRC determines research priorities, then works to see they are met with a minimum of waste and duplication.

HORTICULTURE EXPORT AUTHORITY (HEA):- The HEA was established in 1987 and its major function is to develop successful long term Export Marketing Strategies (EMS) for those product groups which use HEA's services. Summerfruit was the first product group to join HEA. The HEA looks at the total business of marketing a crop from every angle, taking into account views of growers and exporters. It also ensures research and development is targeted towards market requirements. HEA has the power to licence exporters, promote compliance with grade standards and to collect levies. It is working to establish a "NZ Inc" approach and attitude to the marketing of horticultural products.

SUMMERFRUIT EXPORT COUNCIL (SEC):- The SEC is the recognised product group under the Horticulture Export Authority Act. The SEC is made up of representatives from Fruitgrowers Federation and the Horticulture Export Council. In conjunction with the HEA the Summerfruit Export Council has set up its Export Marketing Strategy (EMS) ie planning and co-ordination of fruit in the marketplace.

HORTICULTURE EXPORTERS' COUNCIL:- Its members include all those exporters granted licences by the HEA.

NZ FRUIT AND PRODUCE AND AUCTIONEERS FEDERATION: This organisation represents the interests of the Central Marketing System.

Quality Control, Grading, Packaging and Storage

Quality Control (Export)

Quality control is perhaps better termed quality management, and this is the idea that the SEC is trying to promote to growers. Quality management is an ongoing process to ensure that the best possible fruit are produced. Harvest and post-harvest management are a part of this programme and are critical, especially with summerfruit.

The procedures as outlined in the Summerfruit Quality Assurance Manual are:

- (i) The appointment to every packhouse of a quality controller to ensure all quality specifications are adhered to.
- (ii) Orchard picking methods, maturity and handling.
- (iii) Packhouse entry check maturity, pest and disease level, harvest damage.
- (iv) Sorting table <u>remove</u> pests and diseases out of grade fruit, <u>check</u> maturity, colour and grades.

- (v) Packing bins <u>remove</u> pests and diseases out of grade fruit, damaged fruit and incorrectly sized fruit. <u>Check</u> carton assembly, maturity and colour grades.
- (vi) Tray sealing check tray weight, fruit size, all 'pockets' filled, stamping and branding.
- (vii) Cool Storage and Despatch.

Grading (Export)

Check for pests and diseases.

Grading standards:

(i)	Cosmetic Defects	- over-maturity, breakdown, damage, cracks etc.		
•		- surface deposits and blemishes.		
(ii)	Minimum sizes of H	xport Fruit		
	Apricots	- 47mm		
	Plums	- 45mm		
	Peaches and Nectari	nes - 55mm		
	Cherries (12 rows -	USA standard) - 22mm		
(iii)	Colour			
	Nectarines - m	nimum 30% fruit surface characteristic blush or red colour of		
	Va			
	Peaches - m	nimum 20% characteristic blush or red colour (except clear		
	sk	inned varieties).		
	Cherries - wi	thin standards relating to variety.		

The SEC has District Grade Committees set up in Alexandra, Christchurch, Hastings and Blenheim to monitor grading.

MAFQual's quality assurance role spans the entire production system ie they monitor production, harvest, packhouse, coolstore and transport options. MAFQual interprets the importing country's plant health requirements, audits the exporters' quality systems to ensure that requirements are met, and provide certification to MAF's counterparts overseas.

Quality Control and Grading (Local Market)

There are no official local market quality control measures or grading standards. There has been concern about the quality of fruit on the local market eg sometimes it is sold unripe because growers try to avoid post-harvest disease problems.

Growers should be strict in sizing and quality control (on both the local and export markets) as although they will be marketing less fruit it will be of top quality. This gives two advantages

- the grower's own name is enhanced as a packer of premium fruit.
- the market is strengthened.

Packaging (Export)

Although exporters have argued that standard packaging would lower overall packaging quality and does not recognise marketing differences, it is to be introduced. By 1991 all packaging will be standardised, this gives exporters time to use up old stocks during 1990. Each package must be labelled with the following:

- Summerfruit logo on three sides
- growers registered vendor mark
- kind and variety of produce
- country of origin (New Zealand)
- picking date code Month

01
l
I
t
12: 12th day of month etc.
·

Date

- grade, count or size.

Containers for peaches, nectarines and apricots are 4 kg net boxes; cherries are boxes of 1 kg, 2 kg or 4 kg. However exporters are still able to 'brand' their produce and use whatever colours they choose.

Packaging (Local Market)

Generally similar packaging (to export) is used for the local market.

Large retailers argue that growers should not be putting a lot of money into packaging as this is never seen by consumers as stores have their own fixtures. Retailers are looking for a disposable container to hold the produce so that the package gets from orchard to store without damage.

Storage

Post-harvest coolstorage is critical with Summerfruit to ensure market shelf appearance as a premium product. Peaches and Nectarines are highly perishable products (as are all summerfruit) and their storage life is only 3-6 weeks at temperatures between -0.5°C and 0°C, with relative humidities of 90% to 95%. If kept any longer under refrigeration the fruit begin to break down internally. They develop a dry mealy flesh and often the flesh becomes browned by the low temperatures. If kept at higher storage temperatures ripening occurs and rot organisms can affect the fruit.

The Quality Assurance Manual has three recommendations:

- (i) rapid cooling to 0° C to remove 'field heat' in no more than 24 hours after harvest.
- (ii) maintaining a temperature of 0°C throughout distribution.
- (iii) picking fruit when properly mature.

Controlled Atmosphere (CA) storage is extremely variable depending on variety. For peaches and nectarines early season maturing cultivars generally store better than later ones. Cultivars which store well in air generally don't respond to CA storage and vice versa. CA storage for peaches and nectarines is 7% oxygen, 7% carbon dioxide and the rest nitrogen.

Waxing and fungicide treatments are effective in reducing post-harvest decay and moisture loss. However every country has different regulations regarding postharvest chemicals. For example Japan accepts none except for funigation, EEC countries very low residues, and Australia accepts dipping of summerfruit (mainly to prevent brown rot).

All nectarines and cherries exported to Japan must be fumigated in methyl bromide. This chemical can initiate premature ripening and damage the fruit as well as reduce its shelf-life.

The storage life of peaches and nectarines can be extended by strategically warming the fruit.

Market and Product Research

Most of the research that has been carried out, and is ongoing, is product and production based. However unless market research is carried out to determine the sort of products that are required then the effort is wasted. The recent changes in Government funding have caused a rethink in research priorities and they are starting to be more aligned to the market. Research currently being undertaken includes:

- (i) <u>Cultivars</u>
 - The DSIR released the Cluthagold apricot variety in March 1988 as a result of its breeding programme of crosses between Moorpark (good taste) and Sundrop (good size and colour).
 - white fleshed peaches from USA and Japan are being evaluated and crossed in an attempt to produce a suitable cultivar for the Japanese market.
 - FIPIA has linked with Turners and Growers, the DSIR and American Breeders. They have looked at cultivars with suitable size, colour and flavour that grow well under NZ conditions. Promising selections include:

Cherry	- 32G360
Peaches	- 'Rich Lady'
	- 'Diamond Princess'
Nectarines	- 'Summer Bright'
Plums	- 'Fortune'
	- 'October Sun'.

New selections are usually brought into NZ in February/March and spend at least one year in quarantine (2 if they have a virus). They then go to a nursery for budding and so to trial plantings the following year. It takes three to four years for a variety to get to growers and longer if it is put in trial blocks for evaluation beforehand.

- Rootstock evaluation for all types of summerfruit.

(ii) <u>Storage Trials</u>

- a project is under way looking at the physiological processes that occur in the cell walls (and enzyme activity) to try and improve the transportability of summerfruit.
- post-harvest storage trials of peaches, nectarines and apricots.
- effects of fumigation on various cultivars of nectarines, peaches and cherries. (The 32G360 cherry is already showing promise.)
- (iii) <u>Pest and Disease Controls</u>

- Summerfruit as a group as well as individual trials.

(iv) Other

- cherries to prevent splitting.

Problems within the Industry

The major problem faced by the summerfruit industry is that it has been production lead rather than adopting a marketing approach.

Within the auction system in NZ, merchants believe all produce has some commercial value. No more than 0.5% of what reaches the market floor is dumped. Growers feel that such a statistic is very unfortunate. The fact that some retailers will buy and sell poor quality produce does harm to the industry. This has lead to calls for local market grade standards for summerfruit.

Overall there is lack of structure in the summerfruit industry as the local market and export market are completely separate. The Fruitgrowers Federation feels that a more structured industry would tend to stabilise the local market.

A more structured industry would also help exporters, as efforts by the industry to develop and consolidate new export markets have been hampered by an unstable supply (see Fig 3.2). This inconsistent supply is largely brought about by lack of returns to growers ie better prices on the local market, so the local market is supplied instead of export.

All summerfruit suffer from shelf-life problems, for example nectarines and peaches held under refrigeration for more than 3 to 4 weeks develop a dry mealy texture and become unsaleable. This short shelf-life means that transport costs to export markets are very costly. Produce to Australia can be shipped by sea but the frequency of ship arrivals is a problem. Air-freighting is fast but expensive and it creates problems in that the fruit are not kept in cool storage; this causes them to mature very quickly.

Overseas competition from countries such as Chile (which has lower labour and freight rates to some markets) also inhibits the development of the export industry. To counter this there needs to be more co-operation between exporters and extra effort put into marketing. NZ exporters often see themselves

as being in competition with one-another overseas instead of collectively fighting the competition elsewhere.

This competition amongst exporters has led to price under-cutting on overseas markets which in turn erodes buyers confidence in the product. These lower prices are reflected in payments to growers. In an effort to overcome these problems this coming season, growers in at least one area have joined together to set minimum export prices and a list of exporters they are prepared to supply.

The SEC has been criticised for not monitoring alleged flouting of grade standards by exporters. Growers feel that the consequences of digressions from grade standards need to be written into the Export Marketing Strategy (EMS). The SEC through the HEA can refuse licences to exporters but can't limit the number of exporters. According to the Under Secretary to the Minister of Agriculture, Mr Ralph Maxwell, the Government is working on the legislation to cover this problem.

A problem which happens every so often (apparently for no real reason) is that summerfruit exports to Australia are fumigated on entry (adversely affecting the fruit).

Market Trends - the future

On the local market there is a trend to move to bulk buying at fixed rates from growers, merchant distributors and private brokers. This is at the expense of the auction system.

Australia is our major market for summerfruit especially nectarines and peaches. New Zealand has a 'window' in the Australian market at the end of their stonefruit season. New Zealand (Central Otago) has later season. However Australia is developing more low-chill varieties and their production is increasing. Australian buyers consider the New Zealand product better quality than their own but unless good quality and large sizes are ensured, then our summerfruit will not maintain a premium. Interstate conflicts within Australia do give New Zealand one advantage in the market place.

The Japanese market is seen by some as a panacea. While there are great opportunities in this market, supplies must be of top quality and realistic price. All produce entering Japan from NZ must be fumigated. This disinfestation procedure uses the chemical methyl bromide, and is necessary to ensure

there is no codlin moth present. Each variety must establish the protocol necessary before it is allowed entry. The varieties approved for entry into Japan for 1989/90 are

Cherries - Dawson, Bing, Ranier, Sam, Lambert and Stella.

Nectarines - Redgold, Fantasia, Firebrite.

Japanese have very specific tastes with the level of sweetness being especially important. They are also not used to buying nectarines and cherries around Christmas/New Year so much effort needs to go into marketing. New Zealand is at last trying to breed cultivars that appeal to the Japanese palate, rather than sell a product we happen to over-produce. A good example of the sort of market research going on appears in the November 1989 issue of the Orchardist entitled "Snow peaches - the next generation?"

The South Korean Government is freeing up access to its markets for over 240 agricultural products over the next three years. Opportunities are seen here for fruit juice and cherries.

The Middle East is seen as another possibility for increased exports particularly of apricots, as long as the right cultivars (sweetness) are sent. Other markets identified for apricots include Australia and America.

Resources

Stonefruit Ag Pack - MAF Plant Breeding in New Zealand, eds Watt and Smith Situation and Outlook for NZ Agriculture, MAFCorp Farm Monitoring Reports, MAF Fruit Research Committee Annual Reports Horticulture News The Orchardist Commercial Grower

Acknowledgements

NZ Fruitgrower's Federation Horticulture Export Authority MAFCorp Exporters Growers

· _



· ·

Background of the Industry

The potential for a pastoral industry in New Zealand was seen by Captain James Cook who landed two merinos in Marlborough in his second voyage in 1773. Unfortunately these sheep from the Cape of Good Hope soon died from the effects of their journey. The Reverend Samuel Marsden also introduced sheep in 1814 to the Bay of Islands. However the first permanent flock was established in Wellington in 1934 (by James Wright) from Australian merinos.

During the next decade importations rose so that by the mid 1840's sheep were established in the Wairarapa, Marlborough, Canterbury and Otago regions.

The merino remained New Zealand's dominant breed until the late nineteenth century but being a wool specialist breed its popularity began to wane after the introduction of refrigerated shipping in 1882. The merino also couldn't cope in the wetter North Island areas. The breeds that were favoured in these regions were the dual purpose British breeds of Lincoln and English Leicester.

As the export meat industry developed farmers in the South Island crossed Merinos with Leicesters, Lincolns and Romneys to create the New Zealand Halfbreed, a dual-purpose (meat and wool) sheep. Merinos are still an important breed in the high country and at lower altitudes the NZ Halfbreed is better suited along with the Corriedale.

At about the turn of the century Romneys emerged as being more efficient especially on the now broken in land. So from about 1910 Romneys became popular and increased so that by the 1960's 75% of the national flock was Romney. Today it is more like 40%. Crosses based on the Romney have been very successful eg Perrendale on hard hill country and Coopworth on the lowlands. The Drysdale is another breed of Romney origin and although a specialist carpet-wood producer it is still considered a dual-purpose sheep.

Of the breeds selected for meat the Southdown is the most important and has been used to produce a whole range of different breeds.

Production

Wool has about a 5% share of the world textile market. Overall wool is used in:

outerwear	35%
carpets	25%
knitwear	13%
hand knitting yams	5%
blankets	2%
other	20%

New Zealand wool is used in:

carpets	60%
knitwear/hand knitting yams	23%
special products eg bedding, car upholstery	14%
other	20%

New Zealand is the dominant coarse wool producer and trader in the world. Many large producers such as China and USSR trade little.

A profile of the New Zealand Wool Clip shows that coarse wool (30 microns diameter and greater) comprises 78% of the clip. Table 4.1 lists some of the main wool breeds and their characteristics.

Breed	Fibre Diameter (microns)	Staple length (mm)	Fleece weight (kg)	Major end uses	Percentage National Flock
Merino	19-24	65-100	3.5-5	6,8,9	2%
NZ Halfbreed	25-31	75-110	4-5	5,6,8	4%
Corriedale	20-33	75-125	4.5-6	2,5,8,10	6%
Perrendale	31-35	100-150	3.5-5	1,2,3,4,5	15%
Romney	33-37	125-175	4.5-6	1,2,3,4,5	40%
Coopworth	35-39	125-175	4.5-6	1,3,7	19%
Drysdale	40 plus	200-300	5-7	1	1%
Major end uses:	 Carpets Blankets Coarse Woollens/Overcoatings Furnishing Fabrics Hand-knitting Yams Fine Apparel Coarse Apparel Knitwear Worsted piecegoods Tweeds 				

Table 4.1: Characteristics of Main NZ Wool Breeds

Source: NZWB.

NB: All statistical figures in this report refer to the statistical year ie 1989 Figures are for 1 July 1988 to 30 June 1989.

Farmers have two decisions to make:

- (i) The production balance of meat and wool:
 - primarily meat
 - meat and wool (dual purpose)
 - primarily wool.
- (ii) The breed of sheep within each category.

With both lower sheep numbers and lower per head production (See Fig 4.1) total wool production for the 1988/89 season declined 1.6% to 255,200 tonnes (clean basis) - see Fig 4.2. Production is forecast to fall another 10.1% in the 89/90 season. Sheep numbers as at 30th June 1988 were up by 0.6% to 64.6 million but by the end of the season had fallen 5.8% to 60.8 million, mainly because of east coast drought conditions in both the North and South Islands.



Fig 4.1: Sheep Numbers at beginning of season and clip per head.

Source: NZWB

Fig 4.2: Wool Production (clean equivalent tonnes)



Source: NZWB

Of the 255,200 tonnes (clean) produced in the 88/89 season shorn wool accounted for 225,400 clean tonnes (down 2.6%) and slipe and skin production 29,800 clean tonnes (up 5.3%).

Exports

There are reports of NZ wool first selling in Sydney in the early 1800s. Since then exports have risen markedly and have stabilised out over the last few years. Total exports fell 1% from 1987/88 to 1988/89. For the 1988/89 season China took a record 62,854 tonnes, up 26% (see Fig 4.3).





Source: NZWB

Exports to other countries:	o other countries: USSR	
	USA	also up 10%
	UK	fell 10%
	Western Europe	fell 11%
	Japan	fell 8%.

Overall NZ exports about 97% of the wool it produces, mostly in the raw state ie not processed past scouring. About 30% of raw wool exported is greasy and mainly goes to East and West Europe. 70% of raw wool is scoured and mainly goes to Japan, UK, West Germany, Australia, China and Western Europe. 7% of raw wool exports are slipe (from skins) and mainly goes to the UK and USA.

Wool is most important to the NZ economy returning over 2 billion dollars in overseas earnings 1988/89 season - see Table 4.2. This represents over 14% of NZ's total exports.

Year Ended June					
	1985	1986	1987	1988	1989p
RAW WOOL					
- Greasy - Scoured - Slipe TOTAL	551.9 837.7 85.8 1,475.4	402.9 803.0 75.4 1,281.4	464.4 1,023.6 79.0 1,566.9	559.3 992.2 70.4 1,621.8	651.9 1,078.6 64.7 1,795.3
SHEEPSKINS	26.2	26.3	32.7	43.0	50.3
WOOL WASTE	1.6	1.1	1.2	2.3	2.0
INTERMEDIATE PRODUCTS ²	86.9	95.2	105.2	94.2	117.5
FINAL PRODUCTS ³	121.4	135.3	114.9	94.8	84.3
TOTAL WOOL	1,711.4	1,539.3	1,821.0	1,856.0	2,049.5
TOTAL NZ PRODUCED MERCHANDISE EXPORTS	11,011.9	10,139.0	11,723.9	12,104.1	14,482.8
WOOL AS A % OF TOTAL	15.5	15.2	15.5	15.3	14.2

Table 4.2:FOB1 Value of New Zealand Wool Sector Exports
(\$ million)

p provisional

1 FOB - Free on Board

2 Intermediate Products - Yarn, Tops, Silver

3 Final Products - Carpets/Rugs, Travel Rugs & Blankets, Knitwear, Outerwear, Fabrics.

Source: Department of Statistics Compiled by NZ Wool Board





[75% of all wool exported is scoured]

Structure of Marketing Channels

From Fig 4.4 the most common marketing channel is:

- (i) wool passed by grower to woolbroker
- (ii) woolbroker groups wools and arranges for samples to be taken by test-houses.
- (iii) an auction is held and wool changes ownership from grower to buyer (most commonly an exporter).
- (iv) exporters assemble orders and arrange for blending and scouring (if needed).
- (v) wool is sent to dumps where it is packaged prior to shipment.
- (vi) Shipping transports wool to the mill that has bought it.

However there are many different channels involved in the wool industry and a grower has several selling options.

Grower Options

There are about 10,000 woolgrowing units in New Zealand. A grower may sell wool to:

- 1. auction buyers through a woolbroker.
- 2. a private buyer (private merchant).
- 3. GASS.
- 4. direct to a NZ Mill.
- 5. to the Meat Company when animals are slaughtered.

Links in the Marketing Channels

Woolbroker

A woolbroker acts as an agent for the grower in the sale of wool ie they take a commission. Broker services include sampling, warehouse, grouping for sales, and blending, auctioneering, delivery to woolscourers etc. There are about 10 Woolbroking businesses in New Zealand with Wrightsons and Elders IXL the biggest.

Private Buyers (or Private Merchants)

There are about 150 private buyers in New Zealand. They sample and blend wool as do the woolbrokers. About 25% of the clip is bought by private buyers, on the farm outside the auction system. Private merchants tend to be located in smaller towns, and deal more in oddments. Some woolgrowers prefer private buyers because payment is usually immediate compared with one to two months in the auction system, and there are no transport costs.

Private buyers buy and sell a considerable quantity of wool through the auction system, selling types they don't want and buying types for which they have a market. Private buyers also sell to other merchants and manufacturers both in New Zealand and directly overseas.

GASS - Growers Alternative Selling System

This is an alternative marketing system run by the Wool Board. It was set up for small lots of wool (up to 4 bales) as a trial in Manawatu. During the 1988/89 season 14,210 lots were received from 1076 growers. It is anticipated that this system will be extended to the Waikato/Auckland region this coming season. The GASS system appears to be offering a similar service to the Private Buyers.

Woolscours

There are about 30 woolscours which are mostly owned or partly owned by the wool exporters. New Zealand woolscours are world renown and very efficient through technology developed here in New Zealand (especially at WRONZ). Basically scouring removes all wool contaminants. Wool scourers may also blend wool lots (before scouring), package wool, sample wool for testing and carry out treatments such as bleaching or adding insect resisting chemicals.

Exporters

Exporters purchase wool at auction or privately and may stock it. Exporters traditionally were buyers from individual overseas mills. They sell widely using contacts and/or agents which are used as a constant reference point and for market intelligence. Most exporters make two trips (at least) overseas a year as personal contact is very important in the wool trade; there not being a large number of people in the industry. There are 130 licensed exporters and 80 of these exported last season (1988/89). Fifty of these exported 90% of the wool sent out of New Zealand and of these, 20 exported about 70%. Some of the main exporters most of whom are also involved in woolscouring are:

Maircom - NZ Public company Hartwool - Dutch company Prouvostlefebvre - French company Dewarvien Segart - also French Feltex - NZ Public company Cavalier-Elichtenstien - also NZ Elders International - also NZ. Most of the wool sold by exporters (90-95%), is sold prior to sale. It may in fact be sold some time before ie risk taken by exporter. Generally most of the wool business is on a continuing basis.

Test-Houses

Test-houses are independent organisations that measure and certify pre-sale (usually) and post-sale wools. There are two test houses in New Zealand. The NZ Wool Test Authority (NZWTA) is the largest of these and is an independent subsidiary of the New Zealand Wool Board (NZWB). The second test-house is SGS Testing Services (Societe Generale Superintendants), which is a Swiss Multinational company.

New Zealand Wool Board

The NZWB has a price support influence on the marketplace. (See Sales Arrangements and Pricing.) It also undertakes domestic and international marketing activities and more recently direct selling to overseas mills.

Slipe Works

At the freezing works wool is removed from the skins to form slipe wool. Some wool is left on the skin for processing into sheepskins and related products.

Sales Arrangements and Pricing

Prior to sale wool is independently sampled by the test-houses so it can be accurately described according to various parameters (see Quality Control and Grading). The intention in the next few years is to move to sale by description alone. This would involve 'on line' bidding by competitors with no need to attend a sale.

Auction System

At auction buyers (usually about 30) bid in cents per greasy kg for wool parcels from many growers. Usually there are at least 200 lots for sale each sale day. The NZWB operates a Minimum Price scheme which is designed to give a fair (minimum) return to woolgrowers. The Wool Board (NZWB) sets the minimum price levels prior to the wool season based on currency movements and expected demand. If the auction price fails to reach the minimum price level the Wool Board has two options:

- (i) bidding on the lot concerned, and maybe buying the wool.
- (ii) allowing the lot to be sold below the minimum price and supplementing the price received by the wool grower up to the minimum price level.

The Wool Board holds wool purchased under this scheme in stock and attempts to resell the wool through the auction system when prices have improved.

The Wool Board also may intervene in the auction market to smooth price levels between different sales, by bidding for or buying wool.

This season (1988/89) the Wool Board bid on 30% of wool offered, so it reached the minimum price level. About one third of such bids were successful. This significantly increased grower returns but attracted criticism from wool exporters who felt the Wool Board intervened too much. However, the Wool Board's position is that it seeks to even out fluctuations in the marketplace as these may only be temporary eg currency or trade uncertainty, or they may weaken wool's position against its synthetic rivals.

The Wool Board stockpiles wool when it buys it off the auction floor as part of its supply flattening strategy. At the end of the 1988/89 season the stockpiles stood at 99,900 bales (1,700 tonnes) which was slightly more than the previous season.

The Wool Board this season has also moved into the forward selling of wool and buying to order at auction. It has also attracted criticism for this but has assured exporters that no sales will be below prevailing auction prices.

Pricing

At auction buyers bid freely for growers wool. The auction price for a certain lot of wool may be influenced by:

- wool characteristics (test results and grab sample appraisal)
- exchange rate
- derived consumer demand
- supply of wool and wool types
- competitive fibre prices

- sale day buyer competition
- NZ Wool Board price support activities.

Wool characteristics affecting price are:

- fibre diameter; generally there is a premium for fineness, especially less than 25 microns.
- fibre length; generally wools below 75mm staple length are discounted but this is variable.
- colour; premium for whiteness is low.
- other; for some uses and wools bulk and medullation may be a premium. There are large discounts for high levels of vegetable matter contamination.

Average auction prices for the past 1988/89 season rose by 14% (84 cents) to 688 cents/kg clean. In real terms (adjusting for inflation) this was a rise of 9% on 1987/88.

For a comparison of the last five years see Fig 4.5.

NB: All other prices eg private buyers are based on auction prices.

Levy

The Wool Board receives a levy of 6% on all wool sold. In addition to helping fund the Wool Board this levy goes into research, development and promotion.



Fig 4.5: Real Wool Prices (1988/89 \$'s)

Source: NZWB





Organisations and Groups Affecting the Industry

Federated Farmers

Federated Farmers represent wool growers' interests politically.

New Zealand Wool Board

The NZ Wool Board was established under the Wool Industry Act of 1977. Its stated objectives are: To obtain in the interests of growers, the best possible long-term returns for New Zealand wool by:

- (a) Developing a wool marketing system suited to the requirements of the wool textile industry.
- (b) Marketing New Zealand wool to the best advantage in competition with other textile fibres,
- (c) Bringing about efficiencies in the handling and distribution of wool, with a view to keeping those activities, and related costs to a minimum.

The NZ Wool Board is involved in the following:

- Advisory Services
- Quality Assurance programmes
- Research and Development.
- Market Support including GASS
- Marketing promotion of wool and wool products
- Exporting, and registering wool exporters
- Supporting IWS and WRONZ.

International Wool Secretariat (IWS)

The IWS was established in 1937 by Australia, New Zealand, and South Africa. Uruguay has since joined. The IWS is seen as the NZ Wool Board's principal overseas marketing arm. The IWS is centred in Ilkley, England and with branches involvement its work includes product development and testing, technology transfer, fashion and styling direction, market information, environmental monitoring and machinery evaluation.

The IWS works with processors, manufacturers and retailers by providing promotion and advertising programmes based on the 'Woolmark' brand, and technical support.

Wool Research Organisation of New Zealand (WRONZ)

WRONZ is a research organisation that is funded (50%) by the NZWB. It is especially involved with new technology and processing, and works in closely with the IWS.

MAFTech

MAFTech is involved with research particularly into developing bulk in wool,

MAFCorp

MAFCorp is involved with cost-benefit analyses and policy.

Universities

Lincoln and Massey universities in addition to running degrees and diplomas in Wool Science also conduct research.

Council of Wool Exporters

The Council of Wool Exporters represents the interests of the Wool Exporters. About 50 members belong to this voluntary organisation.

NZ Woolbrokers Association

The NZ Woolbrokers Association represents the interests of the Woolbrokers.

Test-houses

These are entirely independent organisations that test samples of wool (before sale usually).

Private Merchants Association

Private buyers interests are represented by this Association.

NZ Woolscourers Association

This organisation represents the interests of woolscourers.

International Wool Textile Organisations (IWTO)

The IWTO is an association of organisations interested in the merchandising, processing, spinning and weaving of wool and other fibres under private enterprise.

The bulk of raw wool is traded throughout the world within a framework laid down by the IWTO.

Quality Control, Grading and Packaging

Quality Control

The Wool Board runs courses on quality control, has field staff to assist growers, and produces guides on quality assurance. These discuss such factors as:

- (i) How sheep should be prepared prior to shearing.
- (ii) Organisation of shed labour.
- (iii) Skirting and skirting standard.
- (iv) Classing wool.
- (v) Pressing and baling.

Grading

Initial wool classification is done either in the shed, at broker's stores, at the freezing works or wool scours. The Wool Board operates a classer registration scheme for graduates from Diplomas at Lincoln and Massey Universities.

There is no official classification structure but the NZ Wool Board has a type structure used for market support prices. This is based on

Fineness - estimates of micron

Category - broad grouping eg fleece and oddments

Style - combination of staple, crimp, colour and freedom from faults.

Length - in broad groups.

Prior to auction all lots are grab and core sampled for certification. The samples are sent to the independent test-houses for analysis. The accuracy of the test-houses in carrying out measurements of wool for certification is constantly checked by inter-laboratory trials. Test-houses measure weight, fibre density, colour and Vegetable Matter (VM).

Research at the Wool Research Organisation of New Zealand (WRONZ) has proven that six basic properties of wool fibre provide all the information necessary to allow prediction of the processing performance properties of any particular lot of wool. These are:

width of fibro in microso

Diameter	- width of fibre in microns.
Medullation	- inner core of continuous or discontinuous air-filled cells. Good for carpet
	yams as it gives resistance to compression and bulk, but seen as a fault in
	apparel wools.
Vegetable Matter	- this limits the processing of wool on machinery designed for synthetics. The
	type of VM is important.
Length	- fibre length after carding.
Colour	- measured in washed wool by measuring the reflectance of red, green and
	blue light.
Bulk	- is a measure of the filling power of wool. It is related to crimp.

This 'objective measurement' combined with the commercially relevant yield test will enable the Wool Board to move to Sale by Description. The Wool Board is introducing an Objective Blend Specification (OBS) programme which it has tailored so New Zealand wool deliveries will accurately meet individual manufacturer's requirements.

Packaging

Diamotor

Wool has been suffering in packaging of the product and in consistency of the product. The Wool Board has appointed a Quality Assurance Manager this season to overcome these problems.

Furthermore from July 1992 all wool exported from New Zealand must be packed in capless packs, which greatly reduce the risks of wool contamination.

Market and Product Research

The Wool Board conducts extensive market and product research right back to pasture research. It has recently appointed a General Manager Corporate Research and Development to co-ordinate research through the WRONZ, the Universities, DSIR and MAF. Some of the current projects include:

- Winter decline in wool production; Massey University and DSIR. The aim is to maximise the decline in wool production and quantity that occurs in winter. It is anticipated this could increase wool production 10% and give more consistent diameter and strength wool.
- Wet and dry sheep farming; Massey University is evaluating the effects that leaving ewes unmated has on wool production and feed intake.
- High loose bulk sheep; MAFTech at Whatawhata aim to establish a commercial sheep with a high fleece weight and high loose bulk wool.
- Processing and manufacturing; WRONZ have been investigating two products:
 - (i) 'long tailed neps' which are tiny spherical balls of wool with long tails which are incorporated into woollen spun yarn for fashion effects in carpets and upholstery with other uses being investigated.
 - (ii) 'knops' are mechanically produced small spherical balls of wool ideally suited as fill material in pillows, duvets, futons and furniture.

The Wool Board funded IWS Development Centre in Ilkley, England is carrying out new product developments that should especially utilise New Zealand wools such as:-

- handle modification: softer yarns.
- bicomponent yarns: for fashion effects.
- yarn combinations: for fashion effects.
- multi-finishes: for fashion effects.
- warmth-without-weight: lighter weights and fashion effects.

Problems within the Industry

One of the major problems in the industry is the continuing threat of synthetics especially in carpeting. Synthetics are gradually knocking off wool's unique characteristics one by one. For example the Wool 'Berber' look was an IWS invention but sales are now heading downwards because of competition from synthetics.

The exchange rate is another problem. Whilst exporters can hedge against movements in the exchange rate they have a large effect on farm incomes. For wool the effect of a 10% rise in the exchange rate reduces the farm gate price also by 10%.

In the short term, some countries have foreign exchange shortages eg China and USSR in particular. Shipping strikes can also be a short term problem.

Exporters perceive a problem with the Wool Board's intervention in the marketplace. The exporters believe the Board should bid on about 5% and take none. By bidding on up to 60% and taking 30% the exporters think that many potential buyers will be scared off by the high prices and accept substitutes. Obviously the Wool Board does not agree with this.

The Wool Board is trying to introduce bidding in the auction market on a clean wool rather than greasy wool basis as they feel market signals are masked. This example is taken from last autumn's sales:

(cents per kg)	Greasy	Clean	Yield	
Full length fleece	471	612	77%	
Short second shear	466	555	84%	
Difference	.6c	57c		

With greasy comparisons wools appear to have similar valuations but really prices are very different when it comes to clean fibre content. The end user is only interested in clean weight yield and is prepared to pay more for full length fleece over shorter wools. Exporters are resisting the change but the Wool Board hopes to introduce it as soon as possible.

The IWTO and the Exporters have criticised the Wool Board for entering into direct wool-selling activities. They see it as inconsistent and conflicting for the Board to take an active part in the marketing and processing of wool and at the same time, continue to exercise its regulatory and market-intervention policies.

Market Trends (the future)

Wool production per sheep is expected to fall in 1989/90 as are sheep numbers. When these are combined shorn wool production is expected to drop markedly. Slipe wool production will fall also due to lower lamb and mutton slaughterings. Wool prices are expected to remain firm, as are returns from sheepmeat and beef.

The amount of fine wool production in New Zealand is expected to rise along with most other wool producing countries eg, Australia, South Africa, Argentina and Uruguay. This extra production may cause a lessening of the price differential between fine and coarse wools. Changing consumer lifestyles have led to consumer demand for lightweight, comfortable, casual clothing. There has been a corresponding decline in the demand for formal clothing although fashionable men's suits are becoming popular. There has been a rapid growth of women in paid employment, which has had a major impact on the women's clothing market. Demand for fashionable, up-market clothing has increased considerably. Along with changing lifestyles there has been an increase in climate controlled environments so there has been less demand for warm heavy clothing. This coupled with the increase of women in paid employment (less time) has lessened demand for hand knitting yarns; this directly affects New Zealand wools. However fashion trends in major consuming countries have recently begun to herald the return of the woollen look which favours demand for middle micron New Zealand wools.

Developing countries use textiles and clothing as part of the steps to becoming industrialised. Wool is very expensive to process and requires labour. The use of wool follows more industrialisation eg demand for uniforms is very important especially in cooler climates. As spending increases the per capita spending on textiles and clothing increases. China and USSR are in this situation. China has built up a large manufacturing base from wool, and exports many of these products eg blankets to USSR. It is felt that the current situation in China will return to normal in about two years or so. If not its 'role' will be taken up by other countries such as India, Turkey or Iran.

Branding of carpets has led to increases in demand particularly for 'Wool tweed' an IWS development using New Zealand wools. Another exclusive brand 'Wool Futures' also favouring NZ wool will be released to the trade next February (1990). It is hoped that this Wool Futures Movement will be established in the trade by 1993/4.
Resources

NZ Wool Board Annual Reports NZ Wool Board Wool Reports and other bulletins NZ Year Book NZ Sheep and their Wool - NZWB Annual Reviews of the Sheep and Beef Industry Sheep Breeds in NZ - MAF Bulletin 414 Situation and Outlook for NZ Agriculture, MAFCorp Farm Monitoring Reports, MAF

Acknowledgements

NZ Wool Board Council of Wool Exporters MAFCorp Growers Merchants

RESEARCH REPORT

- 173 The Competitive Position of New Zealand Fresh Fruit Exports, M.T. Laing, S.A. Hughes, R.L. Sheppard, 1985.
- 174 Marketing Structures for the Horticultural Industry, N.L. Taylor, R.G. Lattimore, 1985.
- 175 An Economic Survey of New Zealand Town Milk Producers, 1983-84, R.G. Moffitt, 1985
- 176 A Financial and Economic Survey of South Auckland Town Milk Producers and Factory Supply Dairy Farmers, 1983-84, R G. Moffitt, 1985.
- 177 Optimal Pricing and Promotion for Agricultural Marketing Agencies, S.K. Martin, L. Young, A.C. Zwart, 1986.
- 178 A Contractual Framework for Evaluating Agricultural and Horticultural Marketing Channels, S.K. Martin, A.C. Zwart, 1986.
- 179 An Integrated Framework for Analysing Agricultural Marketing Issues, S.K. Martin, A.N. Rae, A.C. Zwart, 1986.
- 180 Labour Mobility Between New Zealand and Australia, R L St Hill, 1986
- 181 Survey of New Zealand Farmer Intentions and Opinions, November 1985-January 1986, J.G. Pryde, P.J. McCartin, 1986.
- 182 A Financial and Economic Survey of South Auckland Town Milk Producers and Factory Supply Dairy Farmers, 1984-85, R.G. Moffitt, 1986
- 183 An Economic Survey of New Zealand Town Milk Producers, 1984-85, R.G. Moffitt, 1986.
- 184 An Economic Survey of NZ Wheatgrowers: Financial Analysis, 1984-85; R.D. Lough, P.J. McCartin, 1986
- 185 The Effect on Horticulture of Dust and Ash: Proposed Waikato Coal-Fired Power Station, P.R. McCrea. October 1986
- 186 A Study of the Determinants of Fattening and Grazing Farm Land Prices in New Zealand, 1962 to 1983. P.G. Seed, R.A. Sandrey, B.D. Ward., December 1986
- 187 Farmers' Responses to Economic Restructuring in Hurunui and Clutha Counties: Preliminary Analysis of Survey Data. J.R. Fairweather, July 1987

DISCUSSION PAPERS

- 112 Economic Evaluation of Matua Prairie Grass: Canterbury Sheep Farms, Glen Greer, J.E. Chamberlain, September 1987.
- 113 Proceedings of the Rural Economy and Society Study Group Symposium on Rural Research Needs, J.R. Fairweather (ed), September 1987.
- 114 A Summary of the Financial Position of Canterbury Farms — mid 1987. J.G. Pryde, November 1987.
- 115 A Case for Removal of Tariff Protection, R.L. St Hill, December 1987.
- 116 Government Livestock Industry Policies: Price Stabilisation and Support, G. Griffith, S. Martin, April 1988
- 117 The NZ Sheepmeat Industry and the Role of the NZ Meat Producer's Board, A. Zwart, S. Martin, March 1988
- 118 Desirable Attributes of Computerised Financial Systems for Property Managers, P. Nuthall, P. Oliver, April 1988
- 119 Papers Presented at the Twelfth Annual Conference of the NZ Branch of the Australian Agricultural Economics Society, Volumes 1 and 2, April 1988

- 188 Survey of NZ Farmer Intentions and Opinions, October-December 1986, J.G. Pryde, P.J. McCartin, July 1987.
- 189 Economic Adjustment in New Zealand: A Developed Country Case Study of Policies and Problems, R.G. Lattimore, July 1987.
- 190 An Economic Survey of New Zealand Town Milk Producers 1985-86, R.G. Moffitt, November 1987.
- 191 The Supplementary Minimum Price Scheme: a Retrospective Analysis, G.R. Griffith, T.P. Grundy, January 1988
- 192 New Zealand Livestock Sector Model: 1986 Version. Volumes 1 and 2, T.P Grundy, R.G. Lattimore, A.C. Zwart, March 1988.
- 193 An Economic Analysis of the 1986 Deregulation of the New Zealand Egg Industry, J.K. Gibson, April 1988.
- 194 Assistance to the Tourist Industry, R. Sandrey, S. Scanlan, June 1988.
- 195 Milk Purchasing: a consumer survey in Auckland and Christchurch, R.L. Sheppard, July 1988.
- 196 Employment and Unemployment in Rural Southland, J. R. Fairweather, November 1988.
- 197 Demand for Wool by Grade A. C. Zwart, T. P. Grundy, November 1988
- 198 Financial Market Liberalisation in New Zealand: an Overview, R. L. St Hill, December 1988.
- 199 An Economic Evaluation of Coppice Fuelwood Production for Canterbury, J. R. Fairweather, A. A. MacIntyre, April 1989
- 200 An Economic Evaluation of Biological Control of Rose-Grain Aphid in New Zealand, T.P. Grundy, May 1989
- 201 An Economic Evaluation of Biological Control of Sweet Brier, T. P. Grundy, November 1989
- 202 An Economic Evaluation of Biological Control of Hieracium, T. P. Grundy, November 1989
- 203 An Economic Evaluation of the Benefits of Research into Biological Control of Clematis Vitalba, G. Greer, R. L. Sheppard, 1990.

120 Challenges in Computer Systems for Farmers, P. Nuthall, June 1988

- 121 Papers Presented at the Thirteenth Annual Conference of the N.Z. Branch of the Australian Agricultural Economics Society, Volumes 1 and 2, November 1988
- 122 A Review of the Deregulation of the NZ Town Milk Industry, R. G. Moffitt, R. L. Sheppard, November 1988.
- 123 Do our Experts Hold the Key to Improved Farm Management? P. L. Nuthall, May 1989
- 124 Some Recent Changes in Rural Society in New Zealand, J. R. Fairweather, July 1989
- 125 Papers Presented at the Fourteenth Annual Conference of the N.Z. Branch of the Australian Agricultural Economics Society, Volumes 1 and 2, October 1989
- 126 Marketing Boards and Anti-Trust Policy, E. McCann, R. G. Lattimore, 1990.

Additional copies of Research Reports, apart from complimentary copies, are available at \$20.00 each. Discussion Papers are usually \$15.00 but copies of Conference Proceedings (which are usually published as Discussion Papers) are \$20.00. Discussion Papers No.119 and 121 are \$20.00 per volume and Discussion Paper No. 109 is \$29.70.