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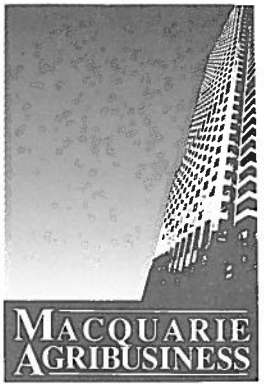

FUTURE MARKETS AND MARKETING STRATEGIES FOR AUSTRALIAN RAW COTTON

FINAL DRAFT REPORT

Prepared For:

COTTON RESEARCH AND DEVELOPMENT CORPORATION

Prepared By:

MACQUARIE AGRIBUSINESS

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9TH FLOOR, 275 GEORGE STREET, GPO BOX 5328, SYDNEY, 2001
Telephone: 02 - 299 4311, Facsimile: 02 - 299 4980
A.C.N: 052 193 638

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Notwithstanding, the contents of the Report are the responsibility of the authors and the opinions it contains are the authors.

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1. EXECUTIVE SUMMARY

1.1 Australia's cotton industry has grown rapidly since its first significant production in the 1960's. Originally supplying the Australian spinning industry, its focus has become increasingly export orientated. Now over 90% of raw cotton produced is exported [See reference 18, pp. 12, 102].

1.2 Section 3 sets out an overview of the Australian cotton industry and the world industry.

- The world's fibre market is growing at about 2% per annum.
- Cotton's share of the fibre market has improved worldwide.
- Cotton's share of the textile market is led by demand from developed economies compared to the less developed countries.
- World prices for cotton are volatile and will continue to be difficult to predict. Whilst demand is relatively stable and growing, supply varies sharply. The effect of the weather is very significant but unpredictable. Also political decisions particularly by the major cotton exporting countries can have a dramatic effect. Price trends will reflect inversely the end stocks to use ratio. Returns to Australian growers will also be affected by the exchange rate to the US dollar. Cotton growers provide for the volatility of price and exchange rate movements by using financial risk management techniques involving futures and currency hedging. Some processors offer pool arrangements which average out returns for those participating.
- The domestic market is largely unchanged in volume terms. Rationalisation of the local spinning industry has ensured the viability of those companies which have modernised their plant and lifted productivity. However, the further lowering of protection in the clothing sector in 1992 is a real threat to the domestic market for cotton.

1.3 The major supplier on the world stage is the USA. It has the size and scope to increase its supply, lower prices or increase its exports. Of total world production, approximately one quarter is traded and, of that, the USA accounts for one third now and this share is projected by ICAC to increase to 40% by the mid 1990's. From 1992 all its cotton will be tested by the US Department of Agriculture. High volume instrument (HVI) classing will be used to provide a series of measurements by which growers, processors, sellers and buyers can agree on a range of specific qualities.

In 90-91 Australia was after

? ~~Australia is~~ the fourth largest exporter in ~~1990/91~~ of the USA, CIS and Pakistan, ~~with 70% of total world exports. However in the better quality, medium staple types Australia accounts for 20% of world exports.~~ Australia is supplying around 7% of the cotton entering international trade. However in the better quality, medium staple types the percentage is considerably higher.

1.4 Section 4 includes an analysis of Australia's exports markets.

- The export market has moved from Western Europe to north east Asian countries particularly Japan, Korea and Taiwan.

- These markets are still major customers but the growth in the world spinning industry is moving to south east Asian countries, mainly Indonesia, Thailand and Malaysia.

1.5 Australia's reputation as a cotton supplier overseas has been greatly enhanced by the quality of new varieties developed in Australia. The poor grades that resulted from rain damage at harvest in three successive years, 1988, 1989, 1990, was a set back for the industry but the position was restored in customers' eyes by the quality of the 1991 crop.

Our major customers are aware of the new, improved Australian varieties. Sicala, in particular, is highly regarded. There would be benefits to growers from promoting a variety name like Sicala, without necessarily referring to new species which can confuse the market. Pima is a good example of this species promotion.

1.6 The marketing system is reviewed in Section 5. Australia's growers use financial risk management techniques including cotton futures on the New York Cotton Exchange and currency hedging. Many growers rely on pool arrangements to spread their risk as they do not understand, or do not want to invest time in the more sophisticated techniques available.

- Production of cotton has been enhanced by the new varieties developed. Australian yields are amongst the highest in the world due to the large proportion of cotton grown by irrigation and the newer higher yielding varieties.

- The profile of Australian cotton growers varies between small farmers, large corporate farmers, farmer/processors and farmer/processors/marketers. The marketing of Australian cotton is carried out primarily by the processors. A small group of merchants, mostly with international affiliations also play a role in the market by offering to buy on an opportunity basis and offering cash.

- The market operates very successfully in clearing the crop and by providing details on world price and exchange information to sellers. Whilst growers are paid premiums and discounts on the quality of their cotton the system does not reflect the true quality values to the spinner. The grower's crop is properly classed, graded and paid for under the long standing system of grading. However, HVI testing will allow the world market to adopt a more sophisticated approach to premiums and discounts. It is recommended that the Australian industry be at the forefront in the adoption of these testing practices.

1.7 A number of high volume instrument (HVI) testing lines have been installed in Australia.

- Purchasing countries are introducing HVI facilities to enable them to cross-check the USA results. Australia already has a number of HVI lines in operation by cotton processors. About half the Australian cotton is now tested by this equipment. The ramifications of this are discussed in Section 6.

1.8 In considering future market strategies it is necessary to consider not only the current situation and trends but also the strengths and weaknesses of the Australian situation and opportunities and threats that may develop and alter the situation. A SWOT analysis is carried out in Section 7.

1.9 Marketing strategies are reviewed in Section 8.

- The suppliers of raw cotton have a real interest in the survival of a viable Australian spinning industry. Despite the preponderance of export sales, which is an increasing trend, the Australian market provides a secure sales base, no currency exposure, a local market to provide feed back on spinning needs and is not vulnerable to competitor countries from protection policies.

- It is in the national interest, also, to encourage efficient local processing of our raw materials.

- In the world market opportunities include:

  - Growth markets in South East Asia are in relatively close proximity to Australia, such as Indonesia, Malaysia, Thailand and the Philippines.

  - Current spinning capacity is centered in North East Asia and higher count yarn production is likely to remain in this region. Australian cotton enjoys a reputation for quality and consistency in this region.

  - India is increasing its spinning capacity but its seems is producing less cotton and will require significant levels of imported raw cotton, at least in the short term.

  - New spinning industries are being established in developing countries in the Asian region such as Vietnam, Sri Lanka and Burma.

  - New uses for cotton and new products consisting of cotton.

  - Consumer preference developing for cotton because of its appeal as a natural, bio-degradable product.

1.10 In reviewing marketing strategies it is necessary to establish an action plan of how these maybe put into effect.

Some strategies are a matter for decision by individual growers, others by grower associations. The actual marketing function is carried out by the processors. The structure of the associations in the Australian Cotton industry and their functions are reviewed. The industry does not promote generic Australian cotton in overseas markets. It has developed promotional material for domestic use through the Australian Cotton Foundation (ACF), Government funding in this area is non-existent, unlike the US governments support of the worlds' largest cotton producers and exporters. The ACF's functions could be expanded to provide a generic promotion role for use in world markets by the industry's marketers.

Our cotton marketers have been very successful in gaining market share in the Asian markets and in disposing of the Australian crop. The challenge for markets is to obtain better margins for Australian cotton based on qualities which are not fully taken into account under the current long standing system of classification by grade.

1.11 Recommended Action Plan

Recommendation 1: The Australian raw cotton processing industry should take steps, which some have already done, to install HVI facilities. The goal should be to have all Australian cotton HVI tested by the year 1993 or 1994 at the latest. Every bale of cotton should be individually tested by objective measurement. Initially, manual classing should be supplemented with objective fibre testing. Australia should be represented on the spinners Committee of the ITMF.

Recommendation 2: Cotton growers should require objective testing of their cotton to ensure they gain the advantage of those qualities they now supply for no reward. Naturally there is a threat of discount where the qualities are not present. In balance, the reputation of Australian cotton will be enhanced and growers rewarded for supplying premium quality.

Recommendation 3: The Australian industry should not await developments in HVI testing but actively participate in the development of new tests. It is understood newer faster tests are being developed by overseas test equipment suppliers for honeydew contamination and maturity. The use of these objective measurements by our customers will enhance sales projects and price premiums. Research in this area would be beneficial if it complements the new equipment being developed.

Recommendation 4: Australian researchers in plant breeding should be kept fully informed of these developments in a formal structure by marketers.

Recommendation 5: Ginners and growers should develop a dialogue with spinners to investigate prospects for contract ginning and, in some cases, contract growing and ginning. This may allow price premiums for growers and cost savings for ginners in specific cases.

Recommendation 6: Cotton growers and processors should consider supporting a more gradual restructuring process to allow domestic consumption the chance to rationalise and survive as long term cotton buyers. They should actively support any investigation of other significant means of establishing cotton based industries.

Recommendation 7: Consideration be given to expanding the role of ACF to allow industry level information on long term issues and trends to become more readily available to Australian cotton growers. At present the grower receives a surfeit of information from commercial interests which is adequate for his current commercial decision making. The information recommended would be objective and assist in longer term considerations.

Recommendation 8: ACF's funding be increased by 20% in the 1991/92 year and a further 20% in 1992/93 to allow the development of cost effective promotions material. ACF send promotional material to key Austrade offices in major cotton buying centres. Consideration be given to any role Austrade could play, at minimal cost to Australian shippers.

Recommendation 9: It is of great importance that Australia's expertise in this area is not allowed to diminish. CSIRO and Government Departments concerned should have succession plans in place to guarantee this advantage is not lost as key staff retire or move to other areas.

Recommendation 10: The industry should request greater inputs of staff time by the Federal DOPIE, the NSW Department of Agriculture and the QLD DPI to ensure primary producers considering cotton growing are well briefed on the commercial and agricultural risks before committing themselves to cotton growing.

2. STUDY OBJECTIVES

The specific objectives of the study are to:

(1) Assess the international market for cotton fibre over the next 20 years.
- Include market demand, market requirements, market developments, and market trends.

(2) Identify, analyse and describe strategies by which Australian raw cotton can best exploit the market for cotton fibre over the next 20 years.
- Include a SWOT analysis of Australian raw cotton
- Include brief coverage of increased geographic area for growing cotton in Australia and increasing number of varieties grown

(3) Assess the impact, relevance and market response to new technologies for measuring cotton fibre.
- Include commercial and economic ramifications
- Include coverage of the high volume instrument (HVI) method

(4) Conduct an audit of current systems used to market Australia's raw cotton.
- Include coverage of changes to cotton marketing systems needed to enable Australian raw cotton to best exploit the market for cotton fibre over the next 20 years

(5) Devise a recommended action plan.

3. COTTON INDUSTRY OVERVIEW

3.1 Australian Cotton Industry

3.1.1 Summary

Australia's cotton industry began early this century, but started its major expansion only around 20 years ago. It is now a major agricultural industry, firmly placed on the second tier of rural industries, after the big four of wool, beef, wheat and dairy. It was ranked the fifth largest Australian agricultural industry in 1990/91 in terms of gross value of production, which was estimated at $973 million ($880 million for lint and $93 million for cottonseed). In the past few years, around 90% of Australia's raw cotton production has been exported, although the figure was lower in 1990/91. Exports in 1990/91 were an estimated $676 million, giving cotton the rank of fifth largest agricultural exporter after, wool, beef, wheat , dairy products and sugar [See reference 1, p.626].

As Australia's raw cotton production has expanded over the past two decades, an increasing proportion of production has been exported. Domestic mill use of domestic raw cotton production has been roughly stable (although fluctuating from year to year) and hence, additional production has been exported.

3.1.2 Australian Raw Cotton Production - Supply

Cotton was first grown in Australia in Queensland. Cotton growing in New South Wales began in 1958, in the Namoi Valley, following completion of the Keepit Dam. Cotton was also grown in the Ord River Valley in the Kimberly District of Western Australia for a few years, but production ceased there in 1974/75.

Despite the much earlier beginning, Australia's cotton industry started to expand rapidly only around 20 years ago. Since the mid 1970's, cotton has been grown in Australia in two States - New South Wales, and Queensland.

The main production regions are (see Table 3.1):

- New South Wales: the Gwydir, Namoi, Macintyre and Macquarie Valleys, and Bourke.
- Queensland: Darling Downs, Emerald, St George, Biolela/Theodore, and Central Queensland (dryland).

Table 3.1 also illustrates that irrigated cotton is the major production technique (accounting for approximately 85% of Australian cotton area and 92% of production volume in 1989/90 and 1990/91), with dryland cotton contributing a minor, but growing share of the total. Irrigated cotton yields in 1990/91 (at around 7.1 bales/ha or 1.6 t/ha) were approximately double those of dryland cotton (around 3.8 bales/ha or 0.9 t/ha). New South Wales is the major producing State, accounting for around 74% of areas harvested and 78% of production volume in both 1989/90 and 1990/91, with Queensland accounting for the remainder.

Table 3.1
AUSTRALIAN RAW COTTON (LINT) AREA AND PRODUCTION ESTIMATES : 1989/90 – 1990/91

Location	Irrigated				Dryland				Total			
	Area (1000 ha)		Production (1000 bales *)		Area (1000 ha)		Production (1000 bales *)		Area (1000 ha)		Production (1000 bales *)	
	1989/90	1990/91	1989/90	1990/91	1989/90	1990/91	1989/90	1990/91	1989/90	1990/91	1989/90	1990/91
1. New South Wales												
(1) Gwydir – Moree, Collarenebri	55	67	356	489	4	9	10	31	59	76	366	521
(2) Namoi – Narrabri, Wee Waa	48	52	283	369	1	1	2	5	49	53	286	374
(3) Macintyre – Goondiwindi, Mungindi	22	32	148	237	4	7	12	27	26	39	160	263
(4) Macquarie – Trangie, Warren	25	27	143	189	–	–	–	–	25	27	143	189
(5) Bourke	7	8	46	55	–	–	–	–	7	8	46	55
Total NSW	157	186	976	1339	9	17	24	63	166 (74%)	203 (74%)	1001 (78%)	1402 (78%)
2. Queensland												
(1) Darling Downs – Toowoomba, Dalby	12	17	69	110	12	20	39	84	24	37	108	194
(2) Emerald	11	13	73	82	4	3	8	10	15	16	81	91
(3) St George	9	10	60	74	–	–	–	–	9	10	60	74
(4) Biloela/Theodore	5	5	28	32	5	3	10	10	10	8	38	42
Total Queensland	37	45	229	298	21	26	57	103	59 (26%)	71 (26%)	287 (22%)	402 (22%)
3. Australia TOTAL AUSTRALIA	195 (87%)	231 (84%)	1206 (94%)	1637 (91%)	30 (13%)	43 (16%)	82 (6%)	167 (9%)	225 (100%)	274 (100%)	1287 (100%)	1804 (100%)

* 1 bale = 227 kg

Source: The Australian Cottongrower, Cotton Yearbook, 199[illegible]nd 1991, Toowoomba, Qld.

Cotton crop area harvested and production volume statistics are summarised in Table 3.2. These show an increasing area harvested, and a corresponding rise in lint production, over the past two decades, particularly the past 15 years or so. Over the past 20 years, total area harvested in Australia has increased eight fold, average yields have approximately doubled, and total lint production volume has risen around 20 fold.

Area harvested is estimated to have risen to 270 kha in 1990/91, but is forecast to fall slightly to 268 kha in 1991/92. Volume of raw cotton production is estimated to have reached a record 433kt in 1990/91, but is forecast to drop to 360 kt in 1991/92.

The volume and value of raw cotton (lint) production in Australia over the past years are given in Table 3.3. This table also presents the volume and value of cottonseed production in Australia. Cottonseed value has been generally around 10% the combined crop value (lint plus cottonseed), which is not insignificant.

The value of raw cotton production is estimated to have reached $973 million in 1990/91, but is forecast to decrease to $778 million in 1991/92.

There are around 900 cotton producers in Australia.

3.1.3 Australian Raw Cotton Processing (Ginning)

Currently, there are 27 gins in Australia, operated by 9 ginners, and located as follows:

Ginner	NSW	QLD	Total
Namoi Cotton Cooperative	8	1	9
Auscott Ltd	6		6
Queensland Cotton		4	4
Colly Farms	2		2
Dunavant Enterprises	1	1	2
Twynam Cotton	1		1
Darling River Cotton	1		1
North West Ginning	1		1
Tandou	1		1
TOTAL	21	6	27

Several new gins are currently being constructed or are under consideration (such as at Dalby and Mungindi) and there is concern that this will result in excess ginning capacity.

The major ginning companies and their processing throughputs over the past few years, are given in Table 3.4.

Table 3.2
AUSTRALIAN COTTON PRODUCTION STATISTICS

Year [a]	New South Wales	Queens-land	Australia [b]	New South Wales	Queens-land	Australia [b]
	Area harvested			Lint yield		
	'000 ha	'000 ha	'000 ha	kg/ha	kg/ha	kg/ha
1971-72	29.3	6.9	40.1	1 133	957	1 080
1972-73	31.7	8.0	43.3	744	600	725
1973-74	31.0	7.1	41.7	703	930	731
1974-75	27.5	7.4	35.1	982	797	940
1975-76	23.9	6.0	29.8	853	750	836
1976-77	24.8	8.9	33.7	847	787	831
1977-78	31.6	9.6	41.2	1 104	969	1 073
1978-79	36.1	13.4	49.4	1 102	993	1 073
1979-80	51.4	20.0	71.4	1 243	965	1 165
1980-81	61.6	22.0	83.6	1 252	991	1 183
1981-82	74.5	29.0	103.5	1 456	900	1 298
1982-83	71.9	24.6	96.5	1 043	1 049	1 045
1983-84	104.5	32.9	137.4	1 027	1 033	1 028
1984-85	131.2	51.9	183.1	1 538	904	1 358
1985-86	135.8	41.2	177.0	1 593	1 238	1 510
1986-87	125.0	31.0	146.0	1 451	1 297	1 497
1987-88	163.6	80.9	244.5	1 204	890	1 162
1988-89	140.8	53.3	194.1	1 577	1 332	1 474
1989-90	175.0	64.8	239.8	1 346	1 077	1 273
1990-91 [p]	197.0	73.0	270.0	1 635	1 389	1 563
	Cottonseed production			Lint production		
	kt	kt	kt	kt	kt	kt
1971-72	52.8	12.7	69.1	33.2	6.6	43.3
1972-73	36.4	10.7	50.7	23.6	4.8	31.4
1973-74	35.7	10.8	49.8	21.8	6.6	30.5
1974-75	44.1	9.7	53.8	27.0	5.9	33.0
1975-76	33.2	7.4	40.6	20.4	4.5	24.9
1976-77	34.9	11.7	46.6	21.0	7.0	28.0
1977-78	56.9	15.2	72.1	34.9	9.3	44.2
1978-79	56.8	21.7	78.5	39.6	13.3	53.0
1979-80	104.3	31.5	135.8	63.9	19.3	83.2
1980-81	125.8	35.6	161.4	77.1	21.8	98.9
1981-82	176.5	42.6	219.1	108.2	26.1	134.3
1982-83	112.3	42.1	154.4	75.0	25.8	100.8
1983-84	135.0	55.2	190.2	107.3	34.0	141.3
1984-85	308.2	102.2	410.4	201.8	46.9	248.7
1985-86	306.0	74.0	382.0	216.3	51.0	267.3
1986-87	281.6	48.4	330.0	181.4	40.2	221.6
1987-88	333.9	101.1	435.0	197.0	72.0	284.1
1988-89	345.0	74.3	419.3	222.0	71.0	288.2
1989-90	380.0	113.0	493.0	235.6	69.8	305.3
1990-91 [p]	513.9	159.4	673.4	322.1	99.9	422.0

a Crop year (August–July). b Includes Western Australia. Western Australia has not produced cotton since 1974-75. p Preliminary.
Sources: ABS (1988), *Crops and Pastures, Australia, Season 1986-87*, Cat. No. 7321.0, Canberra (and previous issues); ABS (1991), *Summary of Crops, Australia, 1989-90*, Cat. No. 7330.0, Canberra (and previous issues); Department of Primary Industries and Energy (1991), *Cotton Market News*, Canberra, July/August (and previous monthly issues); ABARE.

Source: ABARE, Commodity Statistical Bulletin, 1991, AGPS, Canberra.

Table 3.3

AUSTRALIAN RAW COTTON (LINT) AND COTTONSEED PRODUCTION

Year	Lint Production		Cottonseed Production		Total Production
	Volume (kt)	Gross Value* (A$m)	Volume (kt)	Gross Value* (A$m)	Gross Value (A$m)
1970/71	20	12	32	1	13
1971/72	43	27	69	3	30
1972/73	31	29	51	4	33
1973/74	30	24	50	3	27
1974/75	33	26	54	3	29
1975/76	25	33	41	4	37
1976/77	28	36	47	4	40
1977/78	44	54	72	7	61
1978/79	53	68	78	8	76
1979/80	83	120	136	15	135
1980/81	99	131	161	16	147
1981/82	134	162	219	20	182
1982/83	101	150	154	18	168
1983/84	141	240	190	29	269
1984/85	249	294	410	39	333
1985/86	258	289	382	33	322
1986/87	214	330	330	31	361
1987/88	284	392	435	57	449
1988/89	286	441	449	56	497
1989/90	305	587	493	59	646
1990/91**	433	880	689	93	973
1991/92***	360	675	571	103	778

* NOTE: Gross value figures for lint production and cottonseed production for 1970/71 to 1983/84 are INDICATIVE ESTIMATES only, as figures for these earlier years are not readily available.

** Preliminary

*** Forecast

Sources: (1) Macquarie Agribusiness
(2) ABARE, Agriculture and Resources Quarterly, various issues, AGPS, Canberra
(3) ABARE, Commodity Statistical Bulletin, various issues, AGPS, Canberra

Table 3.4
AUSTRALIAN RAW COTTON PROCESSING

Processor	Year of Harvest (1000 bales *)					
	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91
Auscott	279	282	275	314	304	311
Colly Farms			54	92	105	133
Darling River	21	14	25	31	39	39
Dunavant			46	75	128	133
Namoi	662	510	532	521	510	577
North West						89
Tandou						7
Twynam			29	31	42	49
Queensland Cotton	187	139	289	236	253	262
TOTAL	1149	945	1251	1301	1381	1600

* 1 bale = 225kg to 1988/89, and 227kg from 1989/90

Source: Raw Cotton Marketing Advisory Committee, Annual Report, various issues, DPIE, Canberra

3.1.4 Australian Raw Cotton Markets - Demand

Around 90% of Australia's raw cotton production is exported. Indeed, as total production has increased, not only has the total volume exported risen, but the proportion of production which has been exported has also increased (see Table 3.5). This is because domestic use sales (the volume of Australian - produced raw cotton used in Australian mills) have been roughly stable (although it has fluctuated a little from year to year) over the past 15 to 20 years (see Table 3.5).

Table 3.5 graphically illustrates that as Australia's raw cotton production has expanded over the past 15 years or so, the additional production has been sold on the export market rather than to domestic mills, as domestic sales have been roughly stable. Over the 10 years from 1980/81 to 1990/91, raw cotton production increased over four fold and raw cotton exports increased over five fold (see Table 3.5).

Raw cotton exports were estimated to be 314 kt and valued at $676 million in 1990/91, and are forecast to rise to a record 363 kt valued at $791 million in 1991/92.

The major export markets for Australia's raw cotton over the past 10 years have been in Asia, with Japan having been by far the biggest customer (see Table 3.6). Whilst Japan continues to be the dominant export market (accounting for 33.3% of total export volume in 1990/91), other countries, such as, Indonesia (18.9%), Republic of Korea (16.1%), Taiwan (7.3%), Thailand (5.1%) and China (5.9%), are becoming increasingly important as export outlets (see Table 3.7).

On the world scene, Australia ranked fourth as a raw cotton exporter in 1989/90, behind USA (1,720 kt), USSR (370 kt) and Pakistan (334 kt). Further comment on this is given in Sections 3.1.8. and 3.2.3.

3.1.5 Australian Raw Cotton Prices

Cotton prices received by Australian cotton growers are determined by three main factors: world spot prices (New York Cotton Futures Exchange prices and Cotlook's Liverpool `A' Index [a daily calculated, simple average of the prices of the cheapest 5 of 12 Middling 1-3/32" growths] are indicative, but **do not totally** reflect actual international cotton spot prices); the `basis' (premium for a specific Australian `type', adjusted for delivery to a certain port at a certain time; the basis is expressed in points on the New York Futures, with 100 points equal to 1 US cent per pound); and exchange rates (particularly the $A/$US exchange rate).

World cotton prices and Australian base prices for raw cotton are given in Table 3.8. A notable (or notorious) feature of world raw cotton prices is their volatility, both within and between years.

Table 3.5

AUSTRALIAN RAW COTTON PRODUCTION AND MARKET OUTLETS

Year	Volume of Production (kt)	Volume of Sales				Value of Exports (A$m)
		Domestic Use*		Exports		
		Volume (kt)	Proportion of Production**	Volume (kt)	Proportion of Production**	
1971/72	43	27		2		2
1972/73	31	29		22		11
1973/74	30	32		3		2
1974/75	33	23		8		5
1975/76	25	27		16		11
5 Year Total	162	138	85%	51	31%	
5 Year Average	32.4	27.6		10.2		
1976/77	28	22		5		7
1977/78	44	21		10		11
1978/79	53	21		24		28
1979/80	83	21		48		67
1980/81	99	22		59		92
5 Year Total	307	107	35%	146	48%	
5 Year Average	61.4	21.4		29.2		
1981/82	134	20		79		117
1982/83	101	17		129		198
1983/84	141	20		81		148
1984/85	249	20		140		260
1985/86	258	21		241		380
5 Year Total	883	98	11%	670	76%	
5 Year Average	176.6	19.6		134.0		
1986/87	214	22		251		345
1987/88	284	22		176		353
1988/89	286	22		286		461
1989/90	305	24		291		539
1990/91***	433	23		314		676
5 Year Total	1522	113	7%	1318	87%	
5 Year Average	304.4	22.6		263.6		
20 Year Total	2874	456	16%	2185	76%	
20 Year Average	143.7	22.8		109.25		

* 'Domestic Use' is : domestic production sold for use in domestic mills.

** The 'Proportion of Production' figures are approximations only. This is because : 'domestic use' figures are domestic production sold for use in domestic mills in 1 year and assumed to have been all harvested in the previous year; 'exports' in 1 year are mostly (around 80% or so) harvested in the previous year; and, complications with stocks. Thus, 'proportion of production' has been calculated for 5 year periods only.

*** Preliminary.

Source : Derived from : (1) ABARE, Commodity Statistical Bulletin, various issues, AGPS, Canberra; and, (2) ABARE, ARQ, various issues, AGPS, Canberra.

Table 3.6
AUSTRALIAN RAW COTTON EXPORTS

(kt)

Destination		1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91 *
Asia:	Japan	62.1	92.7	42.1	66.8	117.4	80.4	64.1	86.8	111.2	104.2
	Indonesia	2.6	4.3	2.4	5.0	12.8	13.1	10.0	23.1	37.8	59.3
	Rep of Korea	4.3	3.9	5.8	3.0	41.1	25.0	8.2	44.8	43.6	50.6
	Taiwan	2.0	9.7	7.9	31.7	28.9	44.7	22.4	34.4	13.4	22.8
	Thailand	0.1	1.1	1.1	0.5	2.1	3.3	3.6	18.4	5.5	16.1
	China	5.7	5.4	5.4						13.7	18.5
	Hong Kong	2.1	1.2	1.2	1.3	6.2	11.0	7.7	8.6	11.7	7.4
	Philippines		0.2	0.2	0.2	2.0	1.4	0.6	15.1	15.0	4.9
	Dem Rep of Korea		1.7	1.7	10.7	0.9	5.3	6.7	10.5	0.2	
	Other	0.2	1.9	1.9	0.1	2.7	2.0	1.8	7.0	3.2	4.4
	Total Asia	79.1	122.1	69.7	119.3	214.1	186.2	125.1	248.7	255.3	288.2
Europe:	Italy		0.4		3.4	4.6	14.1	9.6	13.6	6.0	8.9
	Fed Rep Germany		0.2	4.2	0.2	0.8	16.1	9.1	3.2	5.8	2.9
	Spain					0.1	3.9	10.9	6.1	4.5	0.8
	Yugoslavia			0.6	12.1	0.9		5.5	4.1	1.6	1.4
	Poland				0.7	2.0					0.3
	Other		1.2	3.4	0.9	15.3	11.3	7.2	5.4	6.9	7.7
	Total Europe		1.8	8.2	17.3	23.7	45.4	42.3	32.4	24.8	22.0
USSR											
	Total USSR		5.2	2.5	3.1				0.3		
Other											
	Total Other		0.1	0.1		3.5	19.0	8.6	4.2	**10.9	3.8
	TOTAL	79.1	129.2	80.5	139.7	241.3	250.6	176.0	285.6	291.0	314.0

* Preliminary
** 10 kt were exported to the USA in 1989/90

Source: ABARE, Commodity Statistical Bulletin, various issues, AGPS, Canberra.

Table 3.7
SHARE OF AUSTRALIAN RAW COTTON EXPORTS

(%)

Destination		1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91 *
Asia:	Japan	78.5	71.7	52.3	47.8	48.7	32.1	36.4	30.4	38.2	33.2
	Indonesia	3.3	3.3	3.0	3.6	5.3	5.2	5.7	8.1	13.0	18.9
	Rep of Korea	5.4	3.0	7.2	2.1	17.0	10.0	4.7	15.7	15.0	16.1
	Taiwan	2.5	7.5	9.8	22.7	12.0	17.8	12.7	12.0	4.6	7.3
	Thailand	0.1	0.9	1.4	0.4	0.9	1.3	2.0	6.4	1.9	5.1
	China	7.2	4.2	6.7						4.7	5.9
	Hong Kong	2.7	0.9	1.5	0.9	2.6	4.4	4.4	3.0	4.0	2.4
	Philippines		0.2	0.2	0.1	0.8	0.6	0.3	5.3	5.2	1.6
	Dem Rep of Korea		1.3	2.1	7.7	0.4	2.1	3.8	3.7	0.1	
	Other	0.3	1.5	2.4	0.1	1.1	0.8	1.0	2.5	1.1	1.4
	Total Asia	100.0	94.5	86.6	85.4	88.7	74.3	71.1	87.1	87.7	91.8
Europe:	Italy		0.3		2.4	1.9	5.6	5.5	4.8	2.1	2.8
	Fed Rep Germany		0.2	5.2	0.1	0.3	6.4	5.2	1.1	2.0	0.9
	Spain					0.04	1.6	6.2	2.1	1.5	0.3
	Yugoslavia			0.7	8.7	0.4		3.1	1.4	0.5	0.4
	Poland				0.5	0.8					0.1
	Other		0.9	4.2	0.6	6.3	4.5	4.1	1.9	2.4	2.5
	Total Europe		1.4	10.2	12.4	9.8	18.1	24.0	11.3	8.5	7.0
USSR											
	Total USSR		4.0	3.1	2.2				0.1		
Other											
	Total Other		0.1	0.1		1.5	7.6	4.9	1.5	**3.7	1.2
	TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

* Preliminary
** 10 kt were exported to the USA in 1989/90

Source: Derived from Table 3.6.

Table 3.8
RAW COTTON PRICES

Year	Cotlook Liverpool `A' Index* (USc/lb)	Australian Base Price** Ac/kg
1971/72	37	72
1972/73	40	72
1973/74	76	120
1974/75	53	90
1975/76	62	117
1976/77	84	166
1977/78	65	135
1978/79	76	158
1979/80	85	179
1980/81	94	192
1981/82	74	164
1982/83	76	199
1983/84	88	237
1984/85	71	226
1985/86	51	174
1986/87	58	211
1987/88	74	237
1988/89	64	185
1989/90	82	247
1990/91***	83	250
1991/92****	71	213

* The Cotlook Liverpool `A' Index is a daily calculated, simple average of the prices of the cheapest 5 of 12 Middling 1-3/32" growths

** The Australian `base' price is a derived (not spot or actual) price, which approximates import parity price (it is based on Cotlook `A' index, plus freight and charges)

*** Preliminary

**** Forecast

Source: (1) ABARE, Commodity Statistical Bulletin, 1990, AGPS, Canberra
(2) ABARE, ARQ, Dec 1991, Canberra

3.1.6 Australian Raw Cotton Consumption (Manufacturing)

Over the past 15 years or so, total raw cotton consumption (local production plus imports) by domestic mills has been relatively stable at around 23 kt (or some 100,000 bales) per year, although it has fluctuated a little from year to year (see Table 3.9).

The origin of raw cotton consumed by Australian mills over the past two decades is given in Table 3.9. Clearly, most of Australia's annual raw cotton consumption over the past 20 years, and nearly all over the past 10 years, has been supplied from domestic production.

Imports are now very minor, at around 1 kt or less per year. The few imports that have occurred over the past few years, have mainly come from China, Tanzania and the USA.

Australia has had a cotton manufacturing or spinning industry for many years, with Victoria being a major location. However, the industry has never been large by world standards. There are now four major spinners operating in Australia (see Table 3.10).

3.1.7 Industry Structure

The Australian cotton industry can be divided broadly into: growers (raw cotton producers); ginners (processors); integrated marketers; independent merchants; exporters; and, local spinners (manufacturers). Others having a major involvement in the industry include: the CRDC (R&D administration); R&D practitioners (such as, CSIRO's Plant Industry Division, State Agriculture Departments, private companies); policy makers and extension workers (Federal and State Governments); industry organisations (such as, the Australian Cotton Foundation); farm input supply and service companies (such as, chemical and fertiliser firms, machinery and equipment firms, farm consultants); and cottonseed distributors.

Table 3.9
RAW COTTON CONSUMPTION BY AUSTRALIAN MILLS

Year	Consumption Source				Total Consumption
	Domestic Production		Imports		
	(kt)	(%)	(kt)	(%)	(kt)
1971/72	27.4	75	8.9	25	36.3
1972/73	28.7	88	3.8	12	32.5
1973/74	31.6	79	8.4	21	40.0
1974/75	23.3	85	4.0	15	27.3
1975/76	26.9	87	4.1	13	31.0
1976/77	22.2	82	5.0	18	27.2
1977/78	21.4	84	4.0	16	25.4
1978/79	20.6	92	1.7	8	22.3
1979/80	21.2	91	2.0	9	23.2
1980/81	21.7	91	2.2	9	23.9
1981/82	20.4	95	1.0	5	21.4
1982/83	17.5	96	0.7	4	18.2
1983/84	20.5	95	1.1	5	21.6
1984/85	20.3	88	2.7	12	23.0
1985/86	21.0	98	0.5	2	21.5
1986/87	22.3	99	0.3	1	22.6
1987/88	22.2	99	0.3	1	22.5
1988/89	21.8	95	1.2	5	23.0
1989/90	24.3	95	1.2	5	25.5
1990/91 *	23.0	98	0.5	2	23.5

* Estimate

Source: Derived from: ABARE, Commodity Statistical Bulletin, various issues, AGPS, Canberra.

Table 3.10
AUSTRALIAN COTTON INDUSTRY STRUCTURE

Industry Participant	Industry Sector				
	Growing	Ginning	Marketing		Spinning
			Integrated	Independent Merchant	
(1) Individual Growers					
. Around 900	x				
(2) Grower/Ginners					
. Darling River Cotton*	x	x			
. North West Ginning**	x	x			
. Tandou*	x	x			
. Twynam Cotton*	x	x			
(3) Integrated Grower/Ginner/ Marketers					
. Colly Farms	x	x	x		
. Auscott Ltd	x	x	x		
(4) Integrated Ginner/Marketers					
. Namoi Cotton Cooperative		x	x		
. Dunavant Enterprises		x	x		
. Queensland Cotton		x	x		
(5) Independent Merchants					
. ContiCotton				x	
. Volkart				x	
. Weil Brothers				x	
. Cotton Trading Corporation**				x	
. Ralli Brothers and Coney				x	
(6) Major Spinners					
. Bonds Spinning Mills					x
. Bradmill Textiles P/L					x
. Rocklea Spinning Mills P/L					x
. Textile Industries of Australia					x

* Market their own cotton to domestic spinners and merchants.
** North West Ginning and Cotton Trading Corporation have common links to individual grower owners.

There were reportedly around 900 cotton growers in Australia last year. ACF figures (based on registered growers) indicate this figure should rise to at least 1000 for the 1992 crop, with 80% of these in New South Wales and 20% in Queensland. Recent ABS figures illustrate the increase in number of farms (establishments) up to 1988.

Table 3.11

Number of Cotton Establishments

	NSW	QLD	Total
1979/80: *	87	123	210
1980/81:**	109	154	263
1981/82:**	118	156	274
1982/83:***	na	na	358
1985/86:***	285	184	469
1987: ***	499	113	612
1988: ***	561	207	768
1989: ***	291	178	469

* Estimated Value of Agricultural Operations: >$1500
** Estimated Value of Agricultural Operations: >$2500
*** Estimated Value of Agricultural Operations: >$5000
Source: ABS Pastures and Crops, cat. 7321, various issues

Almost all growers are individual growers. However, there are several companies which operate large, vertically integrated operations comprising growing, ginning and marketing, and which combined account for, reportedly, some 50% of total raw cotton production. In addition, several large companies offer ginning and marketing services. A trend over the past few years has been the emergence of a number of independent merchants, who buy cotton direct from growers and, have it ginned by existing processors and then market the cotton themselves. Around 10% of Australia's raw cotton is purchased by domestic manufacturers, which includes the four major local spinners.

The Australian cotton industry's broad structure and key players is summarised in Table 3.10.

3.1.8 Australia's Share of World Raw Cotton Industry

Australia's share of raw cotton production and exports, over the past 20 years, particularly the past 10 years, has been slowly increasing, albeit from a negligible base 20 years ago (see Table 3.12). Australia now produces around 2.4% of world production, and accounts for some 7% of world exports.

However, as an exporter, Australia's position is substantially more important than its 7% export share would suggest at first glance. This is because:

(1) Australia is on the second tier as a world exporter. Around 25% of total world production is exported. The USA is by far the largest and dominant exporter, now accounting for some 33% of total exports and this proportion is projected to rise to around 40% over the next few years. Australia shares the second tier of important exporters with CIS (formally USSR), Pakistan, China and Paraguay. In 1990/91, Australia exported 314 kt, giving it the rank of fourth largest exporter (after USA, USSR and Pakistan). ICAC [See reference 18] projects Australia will become the third largest exporter in 1991/92 and 1992/93, exceeding Pakistan's projected declining export level.

(2) Australia's cotton exports are at the upper to top end of world exports, in terms of quality. Indeed, Australia accounts for far more than 7% of total world exports of the higher quality type of cotton which it produces. Some estimates put our share of this segment of the export market at over 20%.

Table 3.12
AUSTRALIA'S SHARE OF WORLD RAW COTTON PRODUCTION AND EXPORTS

Year	Production			Exports		
	World	Australia		World	Australia	
	(kt)	Volume (kt)	World Share	(kt)	Volume (kt)	World Share
1971/72	12938	43	0.3%	4111	2	0.0%
1972/73	13595	31	0.2%	4640	22	0.5%
1973/74	13615	30	0.2%	4294	3	0.1%
1974/75	13926	33	0.2%	3814	8	0.2%
1975/76	11706	25	0.2%	4183	16	0.4%
1976/77	12385	28	0.2%	3806	5	0.1%
1977/78	13860	44	0.3%	4239	10	0.2%
1978/79	12933	53	0.4%	4366	24	0.5%
1979/80	14084	83	0.6%	5073	48	0.9%
1980/81	13817	99	0.7%	4393	59	1.3%
1981/82	14995	134	0.9%	4367	79	1.8%
1982/83	14465	101	0.7%	4255	129	3.0%
1983/84	14479	141	1.0%	4293	81	1.9%
1984/85	19239	249	1.3%	4535	140	3.1%
1985/86	17388	258	1.5%	4434	241	5.4%
1986/87	15264	214	1.4%	5730	251	4.4%
1987/88	17666	284	1.6%	5083	176	3.5%
1988/89	18351	286	1.6%	5704	286	5.0%
1989/90	17394	305	1.8%	5233	291	5.6%
1990/91*	18928	433	2.3%	5183	314	6.1%
1991/92**	19942	360	1.8%	4882	363	7.4%
1992/93**	20391	480	2.4%	5065	354	7.0%

* Preliminary
** Forecast

Source: (1) ICAC, Cotton: World Statistics, October 1991.
: (2) ABARE, ARQ, various issues.
: (3) ABARE, Commodity Statistical Bulletin, various issues.

3.1.9 Industry Economic Contribution

In 1990/91, the cotton growing industry's gross value of production was estimated to be $973 million ($880 million for lint and $93 million for cottonseed), representing around 4% of total farm gross value of production. This gave cotton the rank of fifth largest agricultural industry, with beef, wool, wheat and dairy on the first tier in terms of size, and cotton, poultry, sugar, pigs and barley on the second tier.

The cotton industry is also a major rural exporter, as around 90% of Australia's raw cotton production is exported. In 1990/91 raw cotton exports totalled $676 million, or 5% of total farm export value, giving cotton the rank of fifth largest agricultural exporter, after wool, beef, wheat and sugar.

The cotton industry also makes a significant contribution to gross farm product and to direct farm employment.

In addition to these significant direct economic contributions, the cotton industry makes substantial indirect regional economic contributions in the form of output and income, value added, employment and exports by other industries. These include: lint and cottonseed distribution, marketing and processing; input manufacture and supply (eg. chemicals, fertilisers, machinery and equipment); and services, such as, finance. The combined impact of these indirect effects results in a cotton industry economic multiplier in the order of a factor of two or more. This means a total contribution by cotton to Australia's gross income value of, $2,000 million or more in 1990/91.

3.2 World Cotton Industry

3.2.1 Summary

The world cotton industry has been evolving over hundreds of years and today it is a major industry, in terms of raw cotton production and processing/manufacturing. Cotton is grown and processed in many countries and the industry is a major contributor to many national economies.

World raw cotton production is now around 92 million bales (or 20 million kt) and is forecast to top 100 million bales before too long [see reference 18, p.13].

Most raw cotton production is consumed in the country in which it was grown. Around 27% of world raw cotton production is traded. The USA (around 30% at present) dominates exports, followed by the (former) USSR (around 10%). The major importers are NE Asia, in particular, and Western Europe. Table 3.13 summarises world raw cotton supply and distribution.

3.2.2 World Raw Cotton Production

World raw cotton production has been increasing (albeit fluctuating from year to year) over the past 20 years (see Table 3.14). This reflects primarily steadily increasing yields, rather than the relatively small increase in area over the past 20 years (see Table 3.14).

World raw cotton production was 87 million bales in 1990/91, and is forecast to rise to 92 million bales in 1991/92 and 94 million bales in 1992/93 (see Tables 3.15, 3.16 and 3.17). The major producer category continues to be dominated by three to four countries: China (24%), USA (18%), CIS (formerly the USSR) (14%), India (10%) and Pakistan (9%) (see Tables 3.15, 3.16 and 3.17).

The three key producing countries are China, USA and the USSR. India has rapidly increased its share of the cotton produced on a world scale, reaching a level equal to that of the USSR. Australia, by comparison, is a relatively small contributor to total world cotton production (see Table 3.12 and Section 3.1.8).

Table 3.13

SUPPLY AND DISTRIBUTION OF COTTON
August 9, 1991

Years Beginning August 1
Million 480-Lb. Bales

	1987	1988	1989	1990 Est.	1991 Proj.	1992 Proj.
BEGINNING STOCKS						
WORLD TOTAL	37.0	34.7	33.4	27.9	28.6	31.9
CHINA (MAINLAND)	9.4	6.4	4.8	3.5	5.1	5.8
UNITED STATES	5.0	5.8	7.1	3.0	2.2	3.0
TOTAL NET EXPORTERS	29.7	28.0	26.1	21.2	22.8	26.3
NET IMPORTERS	7.3	6.7	7.3	6.7	5.8	5.6
PRODUCTION						
WORLD TOTAL	81.1	84.3	79.9	86.9	91.6	93.7
CHINA (MAINLAND)	19.5	19.1	17.4	20.7	22.7	22.7
USSR	11.3	12.7	12.2	12.1	11.7	11.0
UNITED STATES	14.8	15.4	12.2	15.5	16.2	18.1
INDIA	7.1	8.3	10.6	9.0	10.4	10.9
PAKISTAN	6.7	6.5	6.7	7.5	7.7	7.5
BRAZIL	4.0	3.3	3.1	3.2	3.7	3.7
OTHERS	17.7	19.0	17.7	19.0	19.3	19.7
CONSUMPTION						
WORLD TOTAL	83.5	85.4	86.6	86.4	88.4	90.9
CHINA (MAINLAND)	20.1	20.5	19.7	20.4	21.5	22.6
EASTERN EUROPE & USSR	12.3	12.4	12.1	10.7	10.1	9.4
MAJOR EAST ASIAN 1/	10.4	10.9	10.6	10.3	10.6	10.9
UNITED STATES	7.6	7.8	8.8	8.5	8.5	8.8
INDIA	7.8	8.1	8.6	9.1	9.3	9.6
EC	6.2	5.8	5.9	5.8	5.9	6.0
PAKISTAN	3.6	4.0	5.1	5.8	6.3	6.7
OTHERS	15.5	15.9	15.9	15.8	16.3	16.9
EXPORTS						
WORLD TOTAL	23.3	26.2	24.0	23.8	22.4	23.3
UNITED STATES	6.6	6.1	7.7	7.9	7.0	7.0
USSR	3.5	3.5	3.4	1.7	2.5	3.5
FRANCOPHONE AFRICA	1.7	2.1	2.1	2.3	2.3	2.4
AUSTRALIA	.8	1.3	1.4	1.4	1.7	1.9
PAKISTAN	2.3	3.8	1.3	1.5	1.5	.8
CHINA (MAINLAND)	2.3	1.6	.9	.9	1.0	1.0
INDIA	.1	.1	.8	1.2	.4	.6
IMPORTS						
WORLD TOTAL	23.3	26.3	25.2	23.9	22.4	23.3
MAJOR EAST ASIAN 1/	10.1	11.2	10.0	10.2	10.5	11.0
EC	5.4	5.2	5.2	5.0	5.0	5.3
EASTERN EUROPE & USSR	3.9	3.9	3.4	2.0	1.8	2.0
CHINA (MAINLAND)	.1	1.4	1.9	2.2	.5	.5
ENDING STOCKS						
WORLD TOTAL	34.7	33.4	27.9	28.6	31.9	34.6
CHINA (MAINLAND)	6.4	4.8	3.5	5.1	5.8	5.5
UNITED STATES	5.8	7.1	3.0	2.2	3.0	5.3
TOTAL NET EXPORTERS	28.0	26.1	21.2	22.8	26.3	29.0
NET IMPORTERS	6.7	7.3	6.7	5.8	5.6	5.6
ENDING STOCKS/USE 2/	.41	.44	.38	.38	.38	.42
COTLOOK A INDEX 3/	72.30	66.35	82.40	83	78	74

1/ Includes China (Taiwan), Hong Kong, Indonesia, Japan, the Republic of Korea and Thailand.
2/ World-less-China (Mainland) ending stocks minus China net exports, quantity divided by world-less-China consumption.
3/ U.S. cents per pound. Estimate for 1990/91 based on season to date and expected trends. Forecasts for 1991/92 and 1992/93 based on net China (Mainland) trade and ratios of world-less-China (Mainland) ending stocks to use.

Source: ICAC, Cotton World Statistics, Oct 1991

Table 3.14

WORLD RAW COTTON PRODUCTION

Year	Area Harvested (1000 ha)	Yield (kg/ha)	Production (kt)	Production (1000 bales)
1971/72	33024	392	12938	59423
1972/73	33818	402	13595	62443
1973/74	32558	418	13615	62535
1974/75	33285	418	13926	63962
1975/76	30001	390	11706	53765
1976/77	31513	393	12385	56885
1977/78	34966	396	13860	63658
1978/79	34000	380	12933	59399
1979/80	33100	425	14084	64687
1980/81	33548	412	13817	63462
1981/82	33939	442	14995	68873
1982/83	32174	450	14465	66439
1983/84	32089	451	14470	66460
1984/85	35020	549	19239	88364
1985/86	32486	535	17388	79863
1986/87	29200	523	15264	70107
1987/88	31740	557	17666	81140
1988/89	33514	548	18351	84288
1989/90	31490	552	17394	79892
1990/91 *	33130	571	18928	86935
1991/92**	34944	571	19942	91593
1992/93**	35466	575	20391	93654

* Preliminary
** Forecast

Source: ICAC, Cotton: World Statistics, October 1991.

Table 3.15

World Raw Cotton Production: Key Producers

Country / Year	('000 Bales) 1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
USA	7,771	12,982	13,432	9,731	14,760	15,412	12,196	15,499	16,200	18,090
BRAZIL	3,423	4,431	3,644	2,909	3,968	3,257	3,058	3,156	3,657	3,738
CIS (USSR)	9,976	11,928	12,778	12,217	11,345	12,704	12,227	12,100	11,700	10,978
CHINA	21,298	28,720	19,046	16,261	19,500	19,056	17,398	20,714	22,700	22,702
INDIA	6,122	8,360	9,021	7,254	7,140	8,276	10,599	8,979	10,425	10,901
PAKISTAN	2,271	4,630	5,586	6,059	6,741	6,547	6,679	7,513	7,655	7,541
TURKEY	2,398	2,664	2,379	2,376	2,465	2,986	2,834	3,031	2,711	2,671
AUSTRALIA.	651	1,142	1,187	977	1,293	1,343	1,440	1,939	1,866	1,907
WORLD	66,460	88,364	79,863	70,107	81,140	84,288	79,892	86,935	91,593	93,654

Source: ICAC, Cotton World Statistics, Oct 1991

Table 3.16

World Raw Cotton Production: Key Producers

Country (%)	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
USA	12	15	17	14	18	18	15	18	18	19
BRAZIL	5	5	5	4	5	4	4	4	4	4
CIS (USSR)	15	13	16	17	14	15	15	14	13	12
CHINA	32	33	24	23	24	23	22	24	25	24
INDIA	9	9	11	10	9	10	13	10	11	12
PAKISTAN	3	5	7	9	8	8	8	9	8	8
TURKEY	4	3	3	3	3	4	4	3	3	3
AUSTRALIA	1	1	1	1	2	2	2	2	2	2
WORLD	100	100	100	100	100	100	100	100	100	100

Source: ICAC, Cotton World Statistics, Oct 1991

Table 3.17

MAJOR WORLD RAW COTTON PRODUCING COUNTRIES

Year	Production (kt)				
	3 Major Producing Countries			Australia	World Total
	USA	China	USSR		
1971/72	2281	2221	2347	43	12938
1972/73	2984	2134	2399	31	13595
1973/74	2825	2547	2402	30	13615
1974/75	2513	2504	2661	33	13926
1975/76	1808	2330	2528	25	11706
1976/77	2304	2047	2615	28	12385
1977/78	3133	2047	2767	44	13860
1978/79	2364	2166	2669	53	12933
1979/80	3185	2208	2858	83	14084
1980/81	2422	2700	2939	99	13817
1981/82	3407	2961	2891	134	14995
1982/83	2605	3592	2599	101	14465
1983/84	1692	4637	2172	141	14470
1984/85	2826	6253	2597	249	19239
1985/86	2924	4147	2782	258	17388
1986/87	2119	3540	2660	214	15264
1987/88	3214	4246	2470	284	17666
1988/89	3356	4149	2766	286	18351
1989/90	2655	3788	2662	305	17394
1990/91*	3374	4510	2634	433	18928
1991/92**	3527	4942	2547	360	19942
1992/93**	3939	4943	2390	480	20391

* Preliminary
** Forecast

Source: (1) ICAC, Cotton: World Statistics, October 1991.
(2) ABARE, ARQ, various issues.

3.2.3 World Raw Cotton Trade

(1) Exports

World raw cotton exports have expanded steadily over the past 20 years (see Table 3.18). World raw cotton exports as a proportion of world raw cotton imports has fluctuated between 24% and 38% over the past 20 years, and is now around 25% (see Table 3.18).

The six countries listed, ie: USA, CIS (USSR), Pakistan, Australia, China and Paraguay export 65% of cotton traded in the world. (see Tables 3.19 and 3.20).

USA, USSR and Pakistan whilst being key exporting countries are also key producers and consumers of cotton. Australia, on the other hand, exports most of the cotton it produces, and is a relatively small consumer.

(2) Imports

World raw cotton imports have expanded steadily over the past 20 years, in concert with exports (see Table 3.18).

World cotton import figures indicate that over the past ten years, cotton imports by the key importing countries have remained relatively constant, both in bales and in percentage share between countries. Japan and Korea are clearly the largest importers of cotton, however Indonesia has become increasingly important (see Tables 3.21 and 3.22).

Eight countries (Japan, Korea, Indonesia, Italy, Taiwan, Hong Kong, Thailand and Germany) import roughly 55% of the world cotton. China imported fluctuating amounts over the ten year period, ranging from 1000 bales in 1985/86 to 2,200,000 bales in 1990/91. This amount has been dependent on China's production levels. In years when production declines there is a need to increase imported cotton. Thailand has been steadily increasing the amount imported, from 785,000 bales in 1983/84 to an estimated 1,580,000 bales in 1992/93.

The importance of this data is that the South East Asian region is not only an important market for Australian cotton, but a growing market.

Table 3.18

WORLD RAW COTTON PRODUCTION AND TRADE

Year	Production	Exports		Imports
		Volume	Proportion of Production	
	(kt)	(kt)		(kt)
1971/72	12938	4111	32%	4031
1972/73	13595	4640	34%	4528
1973/74	13615	4294	32%	4408
1974/75	13926	3814	27%	3734
1975/76	11706	4183	36%	4188
1976/77	12385	3806	31%	3951
1977/78	13860	4239	31%	4250
1978/79	12933	4366	34%	4320
1979/80	14084	5073	36%	5093
1980/81	13817	4393	32%	4535
1981/82	14995	4367	29%	4396
1982/83	14465	4255	29%	4353
1983/84	14479	4293	30%	4628
1984/85	19239	4535	24%	4619
1985/86	17388	4434	26%	4773
1986/87	15264	5730	38%	5542
1987/88	17666	5083	29%	5083
1988/89	18351	5704	31%	5716
1989/90	17394	5233	30%	5479
1990/91*	18928	5183	27%	5202
1991/92**	19942	4882	24%	4882
1992/93**	20391	5065	25%	5065

* Preliminary
** Forecast

Source: ICAC, Cotton: World Statistics, October 1991.

Table 3.19 World Raw Cotton Exports: Key Exporters

Country ('000 Bales)	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
USA	6,786	6,215	1,960	6,684	6,582	6,148	7,694	7,900	7,000	7,023
CIS (USSR)	3,283	2,984	3,137	3,419	3,489	3,481	3,370	1,700	2,500	3,500
PAKISTAN	377	1,261	3,148	2,896	2,316	3,818	1,340	1,534	1,500	800
AUSTRALIA.	374	690	1,173	1,251	755	1,312	1,377	1,416	1,725	1,875
CHINA	760	944	2,799	3,169	2,322	1,636	865	914	1,025	1,004
PARAGUAY	366	550	500	340	735	902	1,055	920	1,250	1,250
WORLD	19,718	20,828	20,363	26,319	23,348	26,200	24,034	23,803	22,424	23,262

Source: ICAC, Cotton World Statistics, Oct 1991

Table 3.20 World Raw Cotton Exports: Key Exporters

Country (%)	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
USA	34	30	10	25	28	23	32	33	31	30
CIS (USSR)	17	14	15	13	15	13	14	7	11	15
PAKISTAN	2	6	15	11	10	15	6	6	7	3
CHINA	4	5	14	12	10	6	4	4	5	4
PARAGUAY	2	3	2	1	3	3	4	4	5	5
AUSTRALIA	2	3	8	5	3	5	6	6	8	8
WORLD	100	100	100	100	100	100	100	100	100	100

Source: ICAC, Cotton World Statistics, Oct 1991

Table 3.21

World Raw Cotton Imports: Key Importers

Country	('000 Bales) 1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
GERMANY	988	1,070	987	1,376	976	1,060	1,020	1,070	1,124	1,146
ITALY	1,182	1,196	1,206	1,627	1,460	1,484	1,479	1,600	1,519	1,631
TAIWAN	1,172	1,566	1,904	2,352	,1,810	1,763	1,253	1,369	1,413	1,470
HONG KONG	997	851	1,099	1,508	1,206	1,376	1,026	1,070	1,085	1,104
INDONESIA	557	583	704	932	882	1,110	1,292	1,562	1,791	1,929
JAPAN	3,323	3,135	3,002	3,748	3,413	3,542	3,101	2,900	2,714	2,769
KOREA, REP	1,602	1,644	1,709	1,926	1,955	2,119	2,060	2,950	2,060	2,101
THAILAND	785	662	817	1,290	881	1,252	1,221	1,375	1,486	1,580
AUSTRALIA.	6	12	3	3	2	5	3	5	5	5
WORLD	21,255	21,213	21,923	25,455	23,348	26,256	25,166	23,892	22423	23,262

Source: ICAC, Cotton World Statistics, Oct 1991

Table 3.22

World Raw Cotton Imports: Key Importers

Country (%)	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
GERMANY	5	5	5	5	4	4	4	4	5	5
ITALY	6	6	6	6	6	6	6	7	7	7
TAIWAN	6	7	9	8	7	5	6	6	6	6
HONG KONG	5	4	5	6	5	5	4	5	5	5
INDONESIA	3	3	3	4	4	4	5	7	8	8
THAILAND	4	3	4	5	4	5	5	6	7	7
JAPAN	16	15	14	15	15	13	12	12	12	12
KOREA, REP	8	8	8	8	8	8	8	12	9	9
WORLD	100	100	100	100	100	100	100	100	100	100

Source: ICAC, Cotton World Statistics, Oct 1991

3.2.4 World Raw Cotton Consumption

World raw cotton consumption has increased steadily over the past 40 years (see Chart 3.2 and Table 3.23).

Four key countries consume approximately 55% of world cotton, these being, China, USSR, India and the USA. However, Pakistan is increasingly important with 7% of world consumption in 1991/92 (see Tables 3.24 and 3.25).

Other significant consumers of cotton are Japan, Brazil, Taiwan and Italy. These countries have generally not increased their share of cotton consumed.

China, the leading consumer of world cotton, is also a leading producer importing only approximately 2% of world cotton. China therefore is not an important market for world cotton, due to its own large production.

Japan (3%), Korea (2%), Taiwan (2%) and Italy (2%), other consumers of world cotton are also key importers - 12%, 9%, 6% and 7% respectively. Whereas India (11%), Brazil (4%), Pakistan (7%), whilst key consumers are also key producers, consuming most of what they produce. The USA (10%) and CIS (8%) are not only key consumer and producers, but also key exporters, 30% and 15% respectively.

The importance, therefore, of the largest consumers of world cotton as markets for exporters lies not with consumption alone but with consumption relative to production and imports.

Chart 3.1

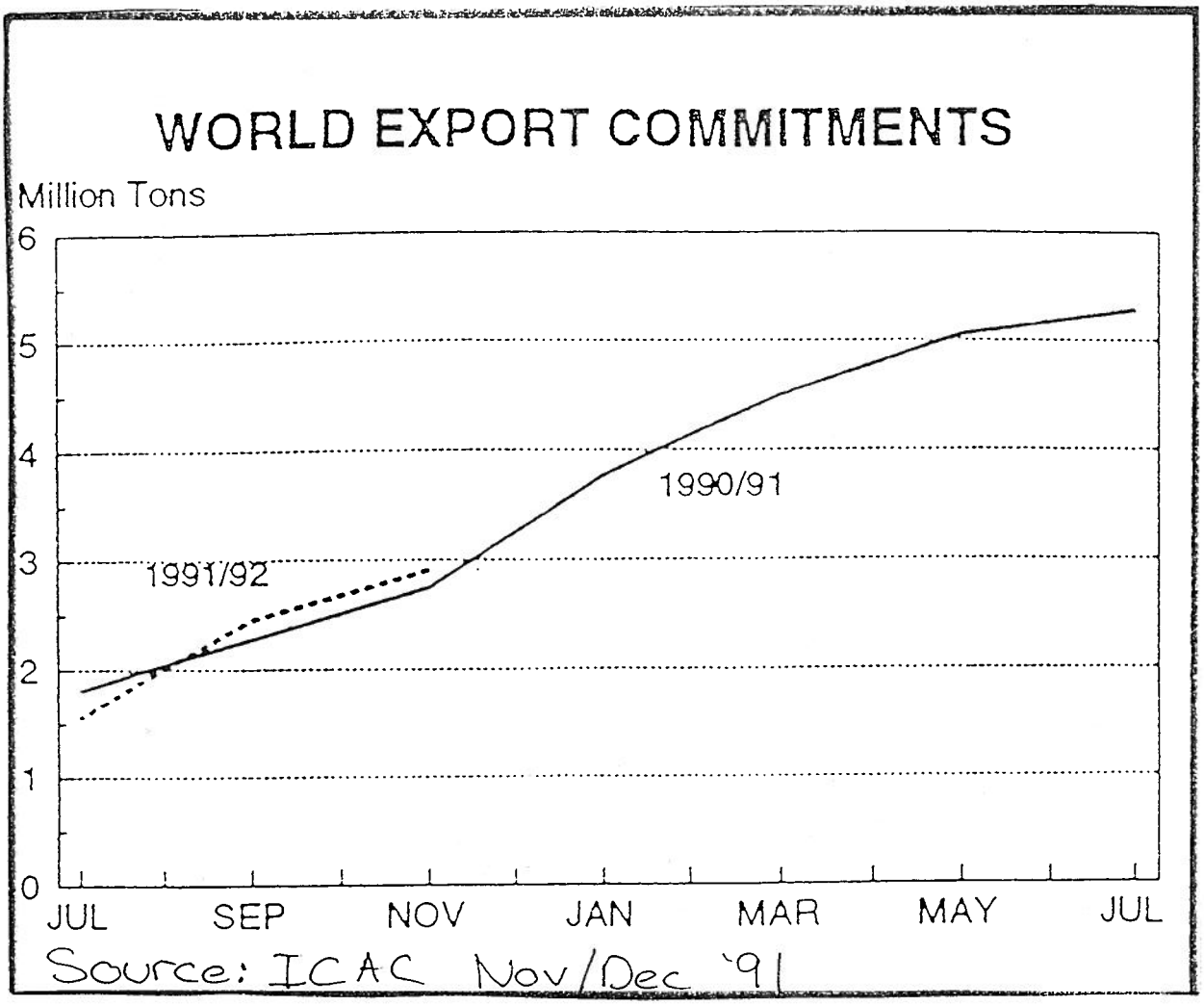


Table 3.23

WORLD RAW COTTON STOCKS, PRODUCTION AND CONSUMPTION

Year	Ending Stocks (kt)	Production (kt)	Total Supply* (kt)	Consumption (kt)	Stocks to Use Ratio**
1971/72	4851	12938	17619	12721	0.38
1972/73	5434	13595	18446	13034	0.42
1973/74	5727	13615	19049	13469	0.43
1974/75	7352	13926	19653	13641	0.54
1975/76	5770	11706	19058	13336	0.43
1976/77	5232	12385	18155	13122	0.40
1977/78	5963	13860	19092	13133	0.45
1978/79	5255	12933	18896	13703	0.38
1979/80	5152	14084	19339	14127	0.36
1980/81	4869	13817	18969	14212	0.34
1981/82	5755	14995	19864	14149	0.41
1982/83	5833	14465	20220	14448	0.40
1983/84	6011	14479	20312	14664	0.41
1984/85	10087	19239	25250	15108	0.67
1985/86	11198	17388	27475	16562	0.68
1986/87	8054	15264	26462	18244	0.44
1987/88	7553	17666	25720	18180	0.42
1988/89	7266	18351	25904	18583	0.39
1989/90	6073	17394	24660	18844	0.32
1990/91***	6233	18928	25001	18806	0.33
1991/92****	6935	19942	26175	19248	0.36
1992/93****	7300	20391	27326	19789	0.37

* Total Supply = Beginning Stocks plus Production
** Stocks to Use Ratio = Ending Stocks divided by Consumption
*** Preliminary
**** Forecast

Source: ICAC, Cotton: World Statistics, October 1991.

Chart 3.2

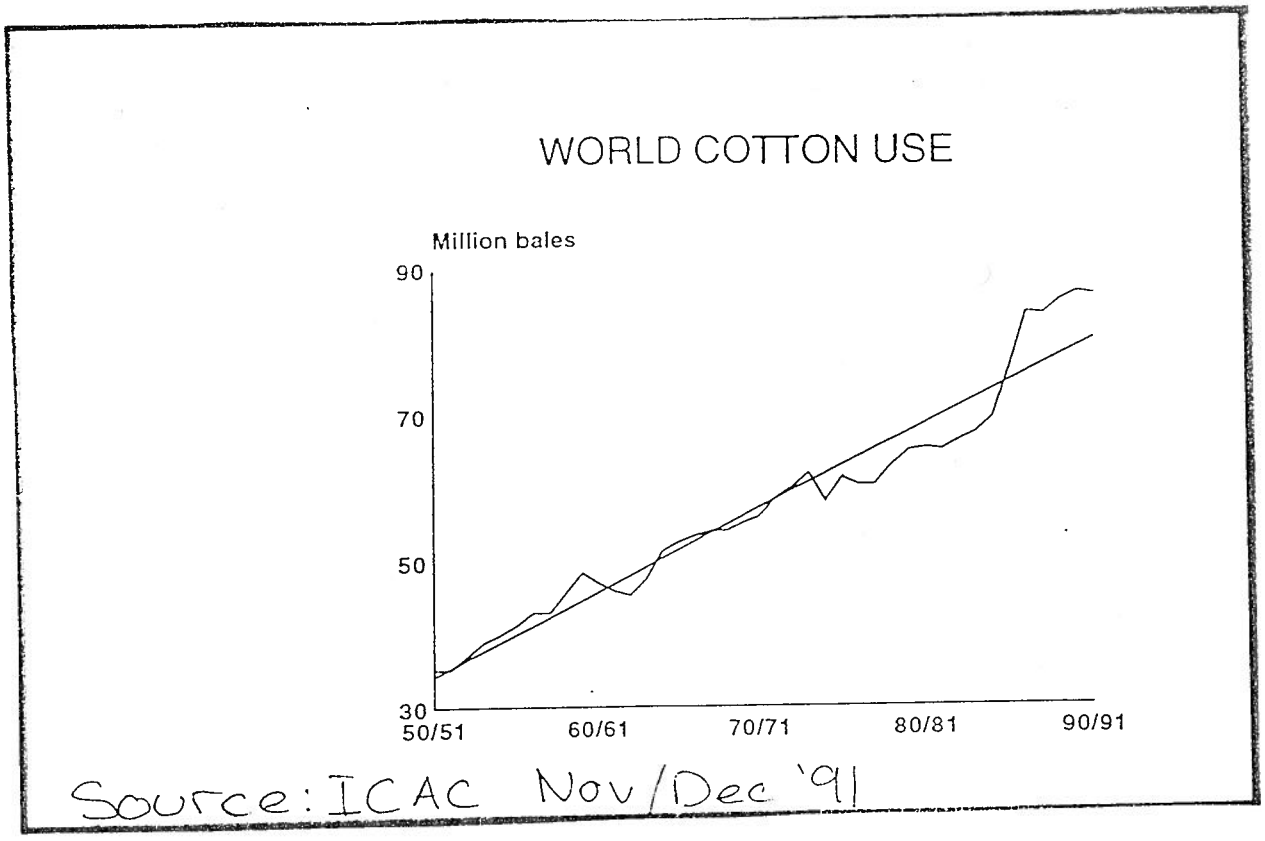

WORLD COTTON USE
Million bales
90
70
50
30
50/51
60/61
70/71
80/81
90/91
Source: ICAC Nov/Dec '91

Table 3.24
Country **World Raw Cotton Consumption : Key Consumers ('000 Bales)**

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
ITALY	1,140	1,212	1,185	1,419	1,511	1,424	1,447	1,575	1,591	1,623
TAIWAN	1,245	1,341	1,977	2,216	1,859	1,753	1,548	1,419	1,391	1,419
JAPAN	3,277	3,181	3,098	3,430	3,430	3,485	3,205	2,940	2,764	2,819
S KOREA	1,617	1,637	1,811	1,874	1,994	2,090	2,075	2,000	2,040	2,101
INDIA	6,580	7,118	7,183	7,819	7,843	8,093	8,615	9,051	9,323	9,603
BRAZIL	2,553	2,753	3,180	3,485	3,727	3,774	3,507	3,325	3,400	3,590
PAKISTAN	2,311	2,503	2,449	3,214	3,564	3,968	5,063	5,775	6,300	6,747
AUSTRALIA	94	93	97	101	102	100	103	117	139	135
USA	5,926	5,540	6,399	7,452	7,617	7,782	8,759	8,500	8,500	8,800
CHINA	15,714	16,002	18,909	20,976	20,065	20,533	19,662	20,452	21,463	22,570
CIS (USSR)	7,900	8,630	9,200	9,400	9,000	9,200	9,200	8,740	8,303	7,597
WORLD	67,353	69,392	76,070	83,793	83,500	85,352	86,552	86,377	88,406	90,891

Source: ICAC, Cotton World Statistics, Oct 1991

Table 3.25
Country **World Raw Cotton Consumption: Key Consumers (%)**

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
ITALY	2	2	2	2	2	2	2	2	2	2
TAIWAN	2	2	2	2	2	2	2	2	2	2
JAPAN	5	5	4	3	4	4	4	3	3	3
S KOREA	2	2	2	2	2	2	2	2	2	2
INDIA	10	10	8	9	9	10	10	11	11	11
BRAZIL	4	4	4	4	4	4	4	4	4	4
PAKISTAN	3	4	3	4	4	5	6	7	7	7
USA	9	8	8	9	9	9	10	10	10	10
CHINA	23	23	25	26	24	24	23	23	24	25
CIS (USSR)	12	12	12	11	11	11	10	10	10	8
WORLD	100	100	100	100	100	100	100	100	100	100

Source: ICAC, Cotton World Statistics, Oct 1991

3.2.5 Stocks

World raw cotton stocks have also risen steadily over the past 20 years (see Table 3.23). World raw cotton stocks to use ratio has fluctuated between 0.32 and 0.68 over the past 20 years (see Table 3.23).

Over the past ten years the largest stock holders of cotton have been, China, USA, India and Brazil (see Tables 3.26 and 3.27). These countries are also the key producing countries, but not necessarily key world exporters.

Table 3.26 shows that China, USSR and USA are the largest holders of cotton stocks at present. The impact of this is the influence these stocks have over world price. A sudden release of cotton on the world market can cause a decline in price.

3.2.6 Prices

World cotton prices are recorded in two main ways, either by the prices on the New York cotton futures exchange or by the prices on the Cotlook Indices.

The Cotlook Indices are an indication of the fluctuation of international cotton values. Daily prices are used to calculate two average values, the Cotlook A and Cotlook B Indices, which reflect the prevailing world value of two styles of cotton popular on most markets.

The Cotlook A Index is cotton classed as Midling 1-3/32". It is calculated by taking the simple average of the day's cheapest five quotations from the following 12 selections, Memphis, Russian, Mexican, Turkish Izmir/ Antalya Standard I, California/ Arizona, Pakistan Type 1505, Australian, Central American, Indian H-4, Paraguayan, Chinese Type 329, and African `Franc Zone' [See reference 10].

The Cotlook B Index is for coarse cotton, commonly used for the production of lower count yarn. It is calculated by a simple average of the day's cheapest three quotations from the following 8 selections, Orleans/ Texas SLM 1-1/32", Russian SLM 1-1/16", Argentine Grade C-1/2, Chinese Type 527, Brazilian Type 5/6, 1-1/16", Pakistan Afzal 1-1/32", Turkish Adana Std.I RG, Indian J-34 [See reference 10].

The most important factor to note regarding cotton prices is that they fluctuate extensively, not only from year to year but within a year. Charts 3.3 and 3.4 illustrate this point. Since 1973, there has been a two in three chance that in any given year, the price has varied on average up to 25%. This variation in price has a significant impact on the returns to a grower within any given season.

Another important factor to note is the reasonably strong (as expected) inverse correlation between world cotton stocks and world cotton prices (see Chart 3.5).

Table 3.26 World Raw Cotton Stocks ('000 Bales)

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
INDIA	2,245	3,031	4,575	2,938	2,091	2,386	3,349	2,106	2,830	3,532
BRAZIL	2,240	3,593	3,578	2,940	2,784	2,266	1,672	1,353	1,589	1,717
PAKISTAN	596	1,471	1,467	1,421	2,287	1,046	1,341	1,549	1,409	1,409
AUSTRALIA	512	884	804	502	940	876	841	1,252	1,260	1,162
USA	2,775	4,102	9,348	5,026	5,771	7,092	3,000	2,200	3,000	5,270
CHINA	3,032	19,891	17,230	9,361	6,430	4,764	3,509	5,084	5,824	5,481
USSR	710	1,863	2,798	2,551	1,806	2,194	2,123	3,973	5,100	5,211
WORLD	27,608	46,330	51,457	37,042	34,789	33,529	27,866	28,628	31,906	34,589

Source: ICAC, Cotton World Statistics, Oct 1991

Table 3.27 World Raw Cotton Stocks (%)

Year	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
INDIA	8	7	9	8	6	7	12	7	9	10
BRAZIL	8	8	7	8	8	7	6	5	5	5
PAKISTAN	3	3	3	4	7	3	5	5	4	4
AUSTRALIA	2	2	2	1	3	3	3	4	4	3
USA	10	9	18	14	17	20	17	8	9	15
CHINA	29	43	33	25	18	14	13	18	18	16
USSR	3	4	5	7	5	6	8	14	16	15
WORLD	100	100	100	100	100	100	100	100	100	100

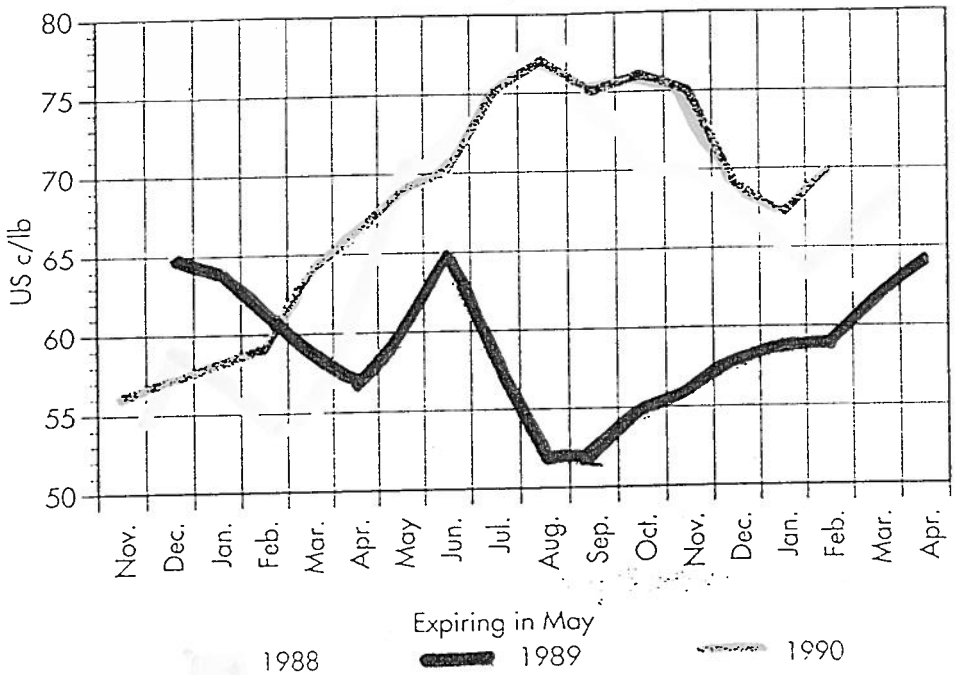
Source: ICAC Cotton World Statistics, Oct 1991

Chart 3.3

SECTION 4
THE INDUSTRY IN FIGURES

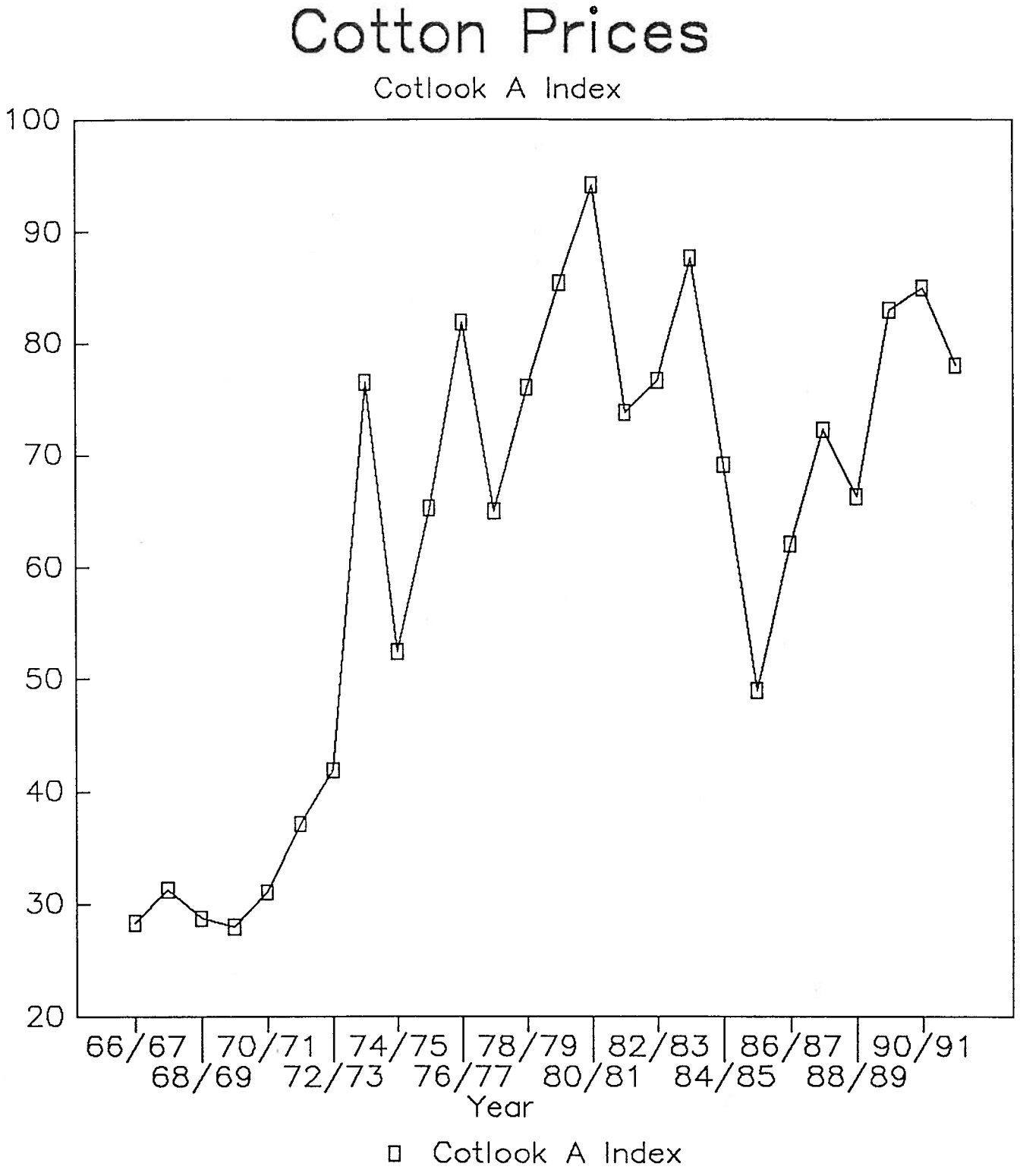
RIGHT:
A cotton futures contract can be traded over a period of eighteen months and price levels can fluctuate wildly during that time.

New York Cotton Futures — life of May contract



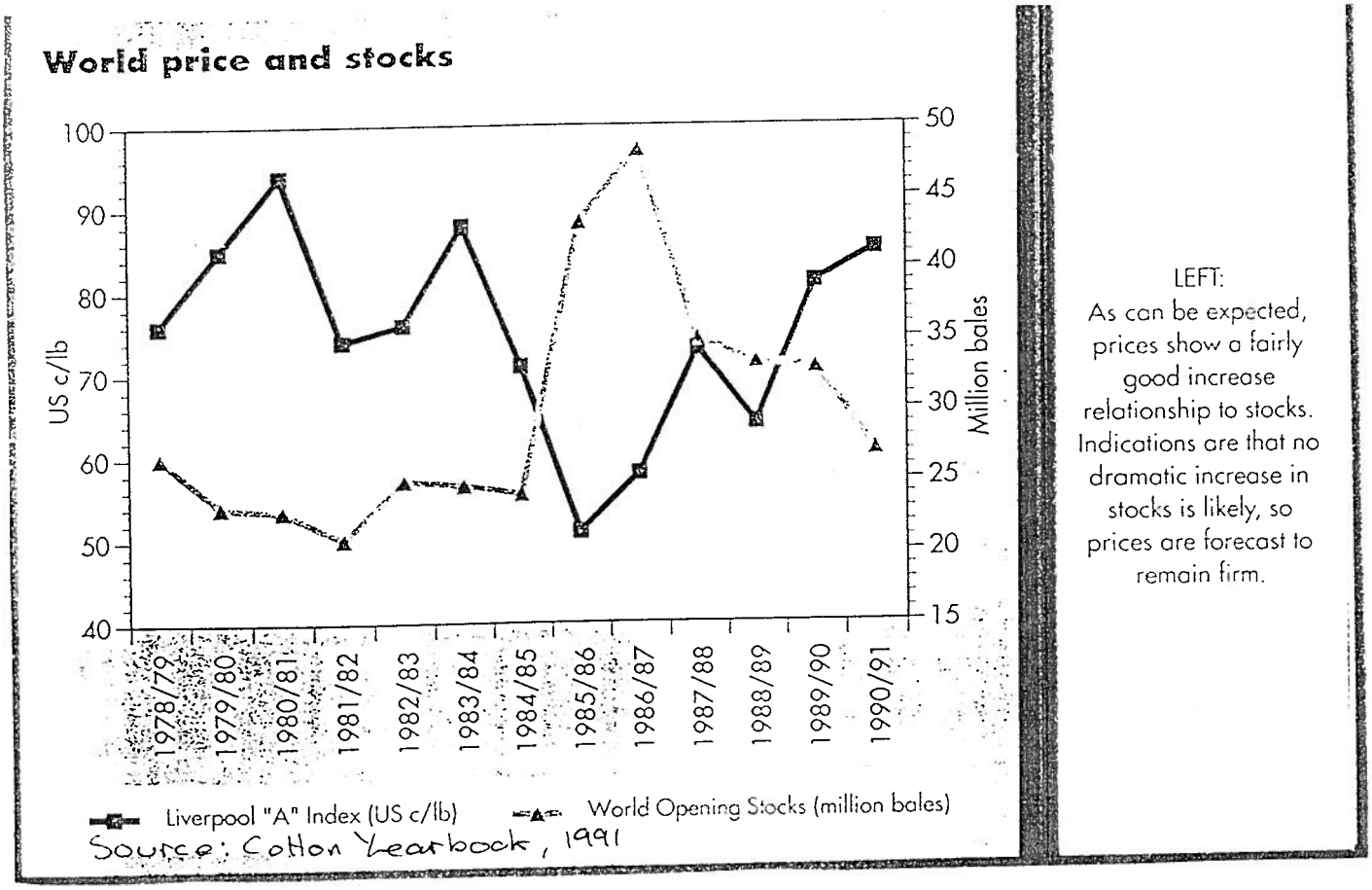
Source: 1991 Cotton Year Book

Chart: 3.4



Source: Derived from Cotton Yearbook, 1991

Chart 3.5



LEFT:
As can be expected, prices show a fairly good increase relationship to stocks. Indications are that no dramatic increase in stocks is likely, so prices are forecast to remain firm.

4. AUSTRALIA'S EXPORT COTTON MARKETS

The Australian cotton industry is expected to continue to export 90% plus of its production. Markets in Europe have been successfully developed. However, it is likely over 85% of Australian cotton exports will be to Asian customers. The pattern that has developed indicates the size of the share to Japan, South Korea and Taiwan will decline in favour of developing countries, Indonesia, Thailand and Malaysia. Longer term Sri Lanka, Vietnam and Burma may become significant.

4.1 Key Export Market Profiles

(1) Japan
(2) Indonesia
(3) Republic of Korea
(4) Taiwan
(5) Thailand

(1) Japan

This is Australia's most important market. It accounts for 39% of our exports (1990), the largest single national export destination. Also its investments in spinning mills in other countries in South East Asia, extends its influence considerably. Anecdotal evidence suggests a significant proportion of Australian cotton exports to Indonesia (the second largest export market in 1990) were for mills operated by Japanese companies.

Japan is Australia's largest customer. The amount purchased declined for some years but remains significantly higher than other markets (see Table 3.6).

Table 4.1
Australia's Cotton Exports to Japan 1985/86 to 1989/90

Year	'000 Bales
1985/86	533.9
1986/87	330.3
1987/88	246.8
1988/89	444.7
1989/90	530.7
1990/91	438.3

Source: The Japan Cotton Traders Association

The poor sales in 1986/87, 1987/88 and 1988/89 resulted from the wet harvesting conditions in those years with consequential lowering in quality. The Japanese customer puts more emphasis on bright cotton than other countries and this continues to be a major requirement of this market.

As an importer we hold a minor but significant share of the Japanese market (see Table 4.2).

Table 4.2
Australia's Share of Cotton Imports to Japan 1985/86 to 1989/90

Year	Total Imports	Australia's Imports	%
1985/86	3,002.4	533.9	17.7
1986/87	3,748.0	330.3	8.0
1987/88	3,412.5	246.8	7.2
1988/89	3,542.3	444.7	12.5
1989/90	3,100.8	530.7	17.1
1990/91	2,900.0	438.3	15.1

Please note: figures - '000 bales
Source: ICAC Cotton World Statistics

Future Demand

Japanese industry spokesman consider Australia's reputation as a supplier of uniform cotton is good and has improved in recent years. Accordingly, Australia is seen as an important long term supplier. Some mills now utilising Australian cotton require a continuing supply of our cotton as their mills are set to handle a mix which depends on the Australian input.

The size of the Japanese industry will decline in the longer term. There is significant labour shortages being experienced as the Japanese worker shuns factory work in preference for employment in the service industries. Companies are moving plants to countries where labour is plentiful and cheap. These include:

Indonesia
Malaysia
Thailand

Korea is now considered a higher wage country and is not favoured for Japanese investment. Vietnam is considered but no Japanese mills have commenced operations there as yet.

There are no statistics on the level of Japanese ownership of plants in developing countries. Some industry people consider the Japanese move off shore has peaked.

It should be noted that the low count fabric production is being discontinued in Japan in favour of production in developing countries. High count quality fabric production will remain in Japan.

Trends In The Cotton Industry

Australian cotton is generally regarded as suitable for Japanese mills and it is felt the quality is satisfactory for the mills technology in the longer term.

Australian cotton is well regarded for:
- Absence of honey dew
- Reasonably free of contamination
- Reasonable strength
- Shipping and packaging reliability
- Sicala is now preferred by some mills over SJV
- Timing - Australia has the advantage of supplying when major sources are carrying significant holding costs.

Concern was expressed with regard to:
- The properties of poor colour due to wet harvesting. The question was posed several times: Can we breed plants which can be planted and harvested earlier to avoid the wet conditions? The unreliability of our weather pattern was not understood by some of the Japanese industry people.
- Labelling - It was considered desirable to provide more information about the source and quality of bales. If 1/100 bales was HVI tested using methods which were consistent with buyers testing, this would be a great advantage.
- Belts - One customer commented that the bale ties were inadequate and could be improved upon. Burst bales had occurred in some shipments as a result of poor ties.
- Ginning Speeds - There has been some concern about ginning speed effect on quality although the problem is more serious with some USA suppliers.

HVI Testing

Spinlab and MCI equipment is used in Japan and many firms have their own HVI lines. It seems Spinlab is more widely used.

Trends In Ginning Machinery

No new technology is foreseen which will dramatically impact on cotton types through to the year 2000. Present trends are towards:
More automation
Higher speeds

Consequently the cotton quality will need to be:
High strength
Longer fibre

Japanese spinning still relies on ring spinning to a greater extent than the emphasis on open end spinning in the USA. Where ring spinning applies Australian cotton is considered ideal.

Distribution

Japan differs from other importers in the role of the merchant. Whereas Australian shippers generally sell to mills through an agent, the Japanese agency firms deal with one of the eleven odd merchants. The merchant companies play a key role in shipping and finance. This structure is extremely solid and unlikely to change.

The ability to control shipping and finance costs allows merchants to manipulate prices in various markets. This can and has disadvantaged Australian growers.

Communications

It was noted that Japanese associations receive delegations from cotton supplying countries. They also receive many visitors from the USA. However, they rarely see Australian representatives. On the other hand, Japanese buyers constantly visited Australia and Australian shippers were in direct contact with the mills.

The Austrade offices in Osaka and Tokyo had little or no contact with the Australian cotton industry and carried no information or promotional material.

Trends In End Use

The Japanese view is that cotton will continue to improve its share of the world textile market at the expense of wool and man-made fibres.

(2) Indonesia

Indonesian textile sector has grown rapidly in recent years, especially the garment industry. This rapid growth developed to a demand for more local spinning capacity.

This has led to a substantial increase in the number of new investment projects in the spinning industry over the past three years, rising from 17 approvals in 1988, to 40 in 1989 and 50 in 1990.

As a result, Indonesia's textile sector has been changing substantially over the past three years or so and is now becoming more complete. There has been a move from very labour intensive downstream textile industries (finished textile products and garments) towards capital intensive upstream textile industries. This move is expected to strengthen the textile sector as a whole, which continues to be an important export earner after oil and gas.

This increased investment in Indonesia's spinning industry has come from both local and foreign investors like Japan. Many of the new investment projects are joint ventures involving investors from the newly industrialised countries of Taiwan, Korea and Hong Kong. The entry of investors from those countries is part of the trend of industrial plant relocation to lower labour cost developing countries.

The spinning industry is an intermediate textile industry, bridging upstream industries (fibre production or imports) and downstream industries (fabric production and garment making). The spinning industry is viewed as a profitable industry, which has an important role in holding down the cost of downstream textile production. This is a major consideration given the increasing export orientation of Indonesia's textile sector. The sector's capacity is expected to continue to expand, through plant restructuring and new projects. For example, in 1990, 36 companies received approvals for investing in the weaving industry, 33 in knitting and 25 in spinning.

In the past few years, Indonesia has increased its spinning capacity dramatically - from around 1.5 million spindles five years ago, to around 4.5 million now. In addition, there are now 60,000 rotors. Moreover, total spinning capacity is projected to continue to rise. Also, rotor spinning's **share** of total spinning capacity is projected to increase. This changing share will have ramifications for the order of preferred cotton quality characteristics, with strength and fineness assuming even greater importance.

Indonesia's spinning industry is located predominantly in Java, particularly West Java, which has plenty of labour, and is close to both yarn consumers and spinning raw material sources. The location of spinning mills and their capacity in 1990 was:

Table 4.3

	Number of Mills	Number of Spindles
West Java	92	2,028,192
Central Java	25	1,119,280
East Java	22	302,610
Jakarta	8	253,930
Yojyakarta	5	114,096
North Sumatera	2	36,000
West Sumatera	2	14,400
South Sumatera	1	30,384
Bali	1	20,400
Total	158	3,919,292

Source: International Cotton Advisory Committee

There are some cotton only spinning mills in Indonesia. However, the majority of mills produce blended yarn, using cotton and polyester or rayon. This is because of the ready supplies of locally produced polyester and rayon.

The spinning industry is still confronted with many problems, in particular, ageing machinery, which is expensive to replace because of high interest rates, and the supply of raw materials, which are mainly imported and use up valuable foreign exchange. Replacing spinning machinery and equipment is now being given a high priority, as many machines are now 15 years old and a large part of the spinning industry needs mill modernisation. Such replacement is now underway, with assistance by government schemes.

Notwithstanding, Indonesia's spinning industry output has been growing rapidly in recent years. Spun yarn production increased by 12 % per year from 1986 to 1990.

To date, Indonesia's textile industry is still somewhat labour intensive, with machinery and equipment generally not having high technology or fully automated. This is mainly because of the high cost involved in modern, high tech machinery, and because Government policy is to seek expansion in industries which can create jobs and employ a substantial labour force.

Some general trends now clearly occurring in Indonesia's cotton spinning and textile and garment manufacturing industries are:

- Increasing unit labour costs (although still low by total world standards).
- Increasing substitution of capital machinery for labour.
- Increasing automation in the spinning industry.

The supply of raw materials to the spinning industry is an important part of the yarn production process, given that raw material costs account for 60% to 65% of yarn production costs.

In the case of raw cotton, the great majority of supply is sourced from imports, with local production supplying an increasingly small volume. Indonesia's cotton growing is restricted mainly to Sulawesi and East Java. The minor level of cotton growing will continue, and reflects the unsuitable wet climate. Supply of raw cotton fibre to Indonesia's spinning industry is sourced as follows:

Table 4.4

	Local Production (kt)	Imports (kt)	Total Supply (kt)
1986	23.7	128.6	152.3
1987	14.3	171.4	185.7
1988	15.0	195.2	210.2
1989	5.7	263.0	268.7
1990	3.3	340.0	

Source: International Cotton Advisory Committee

Raw cotton imports by Indonesia doubled from 1985 to 1980, with the main source being the USA, and Australia (now running second):

Table 4.5

	USA	Australia	Pakistan	Brazil	China	Total
1984/85	70	6	14	1	21	127
1985/86	49	13	30	2	42	153
1986/87	61	10	39	6	57	203
1987/88	63	12	22	18	43	192
1988/89	69	24	57	9	33	242
1990/91	105	40	35	31	17	281

Source: International Cotton Advisory Committee

Indonesia's domestic production of synthetic fibres also has been increasing in the past few years, particularly polyester fibre, which has had a 12.5% annual increase in production over the past five years. This increased MMF supply is being consumed by Indonesia's textile industry.

In addition to domestic spun yarn, Indonesia's spun yarn requirements are met by imports of both cotton and synthetic fibre spun yarn, which have increased over the past three or four years. Such imports are sourced, in particular, from the NICs, Japan and China.

Indonesia's textile sector is expected to expand even further over the next few years, with spinning capacity projected to rise by some 15% per year over the next five years.

From Indonesia's viewpoint, the strengths and weaknesses of Australian raw cotton are:

(1) Strengths

- The geographic proximity of Australia to Indonesia.
- The relatively lower variability of Australian cotton, due to the limited number of varieties.
- The very small honey dew content.
- It is all (sic) irrigated.

(2) Weaknesses

- Cotton is sometimes weather affected.
- Neps content.
- Marketing system.
- Lack of competition amongst growers and suppliers.

Indonesia's demand for raw cotton imports is likely to remain strong for the foreseeable future. Australian raw cotton has a reputation for being of good to excellent quality, and suited for 30 to 40 or 45 counts of yarn. The proviso is that it is not rain affected, and regrettably Australia has a reputation for being somewhat inconsistent in this regard - but so too do other suppliers.

Looking to the future, ii is important for Australia's raw cotton exporters to note that Indonesia's cotton spinners and manufacturers support a move to marketing cotton based on HVI objective measurement.

Feedback from Indonesia clearly states that the future demand by Indonesia for Australian cotton will continue to increase, in volume terms, in future. Moreover, Indonesian buyers will be increasingly quality conscious, and will seek higher quality raw cotton in future. This accords with its mill modernisation plans.

(3) Korea

Contribution of Textiles and Clothing to the National Economy

The textile and clothing industry has played a vital role in the industrialisation of South Korea. By 1975 the sector accounted for 19% of total value added and 25% of industrial employment. It also accounted for 34% of total exports. Since then, textiles and clothing's relative importance has declined. In 1989 it contributed 9% of value added and 14% of industrial employment while accounting for 26% of total exports (see Table 4.6a). Although textile products are the top export earners, their overall share in total exports declined during the 1980's. This pattern reflected the interaction of a number of complex factors. Some of these were related to the macroeconomic environment, while others related to industry specific factors such as trade restrictions.

Table 4.6a
Importance of textiles & clothing to the South Korean economy, 1975-89

%	1975	1985	1986	1987	1988	1989
Share of value added in manufacturing	18.9	13.7	12.8	11.3	10.3	9.0
Share of total exports	34.4	23.1	25.2	24.5	23.2	25.8
Share of employment in manufacturing	25.3	20.7	20.1	18.4	15.9	13.8

Source: Korea Federation of Textile Industries

South Korea purchased 14% of Australia's cotton exports in 1990, the third highest buyer. [Cotton Yearbook, 1991, p.40] In three of the previous five years South Korea was our second largest customer whilst Japans spinning capacity has declined in the 1980's South Koreas industry was still expanding (see Table 4.3). Like Japan, South Korea is moving new plant off shore due to labour shortages at home.

Table 4.6 shows Australia's exports to South Korea. The quality problems referred to above caused by wet conditions at harvest, held back sales. Sales improved as the improved quality cotton became available.

Table 4.6
Australian cotton exports to the Republic of Korea

Year	'000 bales
1985/86	205.1
1986/87	91.6
1987/88	45.4
1988/89	187.9
1989/90	198

Source: International Cotton Advisory Committee

The South Korean spinning industry has most of the trends noted in Japan. The significance of Australia's share is set out in Table 4.7.

Table 4.7
Australia's Imports to the Republic of Korea as a % of Total Imports

	Total	Australia	%
	'000 bales	'000 bales	
1985/86	1709	205.0	12
1986/87	1926	91.6	4.7
1987/88	1955	45.4	2.3
1988/89	2119	187.9	8.8
1989/90	1975	198.0	10
1990/91	1950		

Source: International Cotton Advisory Committee

Future Demand

A major concern in South Korea has been the rising real wage level. This has impacted on competitiveness particularly in the lower quality, 20 count range. Pakistan and the PRC are now significantly lower cost producers and this has impacted on South Korea's market for this fabric. Accordingly more concentration is being given to 40-60 count yarns.

Demand for cotton related closely to GDP growth and the Korean industry sees growth in the GDP for developing countries impacting favourably on demand for cotton products.

One source estimated Australia would increase its share of the Korean market "given good weather".

Supply

USA was the main supplier to the Korean industry but Australian cotton played a significant role. Australia's share of imports is now 9%. We rank second or third as a supplier to this market [See reference 18, p.130].

The most significant change in this area is supply of cotton now being offered by the USSR (now known as the Commonwealth of Independent States CIS). The stability and uniformity of product and its shipment is yet to be tested but if these criteria are met CIS cotton could affect other cotton exporters market share.

Future developments in the US Congress is unpredictable. However, the sheer size and proportionate weight of the US as a supplier can create rapid price swings as happened following the 1986 US farm bill. (See Diagram).

Trends In Cotton Industry

Korea's preference has been for SJV cotton from the USA. It is regarded as stronger and with a better nap than Australian cotton. Australia's cotton is regarded as having the benefit of:

. Uniformity
. Reasonable price for the time of year, at up to 5c/lb cheaper than the US.
. No honey dew - this is a growing problem in a number of supplier countries.

Concern about Australian cotton was due to:

- colour deterioration in the wet harvest years

- short term supply, the Australian suppliers did not offer cotton all year around. The facility of continued supply would enhance Australian cotton, if it could be done economically. The USA is working to supply this service.

HVI

About seven HVI lines are operating in South Korea. There were a number of issues to be resolved in this area to ensure testing is precise and uniform.

Korean firms used a simple test for honey dew and have established this basis with their US suppliers. The US industry has a task force working on the honey dew problem.

Strengths and Weaknesses

Strengths:

- Australian cotton can be expected to benefit from the decline in US cotton quality and its relatively high price. In the mid 1980's USA supplied the cheapest cotton but is now seen as a high price supplier.
- Australia's reputation as a supplier is good.
- Quality is satisfactory in "good weather years".

Weaknesses:

- Perceived problems of wet harvest years.
- Seasonal supplier rather than constant supplier.

Manufacturing

Ring spinning is still the norm in South Korea and this is not expected to alter dramatically.

The same pattern of moving low count yarn production off shore is developing as noted in Japan. The reasons are the same also, mainly domestic labour shortage and higher wages. South Korea is now involved in Indonesia and Sri Lanka. Korean spinners are concerned at labour quality and productivity in these developing countries and the trend offshore may reverse if current moves do not work out successfully.

End Use

Korea's expectation is that the cotton market will grow in line with population growth and that current consumer preferences for natural fibres will continue in the longer term.

(4) Taiwan

Taiwan is a significant importer of our exports being in the top five for the last five years. Table 4.8 shows the level of exports to Taiwan. The amount purchased has fallen away since the mid 1980's.

Taiwan imports of cotton are set out in Table 4.9. This shows Australia's share of the market is declining also.

Like Japan the growth in spinning facilities in Taiwan has stopped and is expected to decline (see Table 4.8). The Taiwanese have concentrated on the USA as a supplier. However, there is a growing awareness of the benefits of Australian cotton. There is an opportunity to increase Australia's share of cotton imports.

Table 4.8 Raw Cotton Exports to Taiwan from Australia

Year	metric tons
1985/86	35.53
1986/87	42.63
1987/88	32.82
1988/89	30.78
1989/90	25.58
1990*	21.15

Table 4.9 Raw Cotton Imports in Taiwan

	Total	Australia	Australian Share
	metric tons	metric tons	%
1985/86	414	35.53	9
1986/87	512	42.63	8
1987/88	394	32.82	8
1988/89	384	30.78	8
1989/90	273	25.58	9
1990/91	298	21.15*	7*

* Calendar Year (Source: Far East Trade Service)
Source: ICAC

Future Demand

New spinning facilities are now tending to be placed off-shore. The same scenario applies in Taiwan as was noted in Japan and South Korea.

Taiwan now looks to manufacture in Indonesia, Malaysia, Thailand. Manpower shortages and higher labour costs are cited as the reason for this move.

Strengths and Weaknesses

Strengths

- Price is competitive
- Absence of honey dew - now a serious problem for some countries such as the USA and West Africa.
- Improved reputation as a supplier.
- Very little complaint with Australia's supply performance.
- Australia's cotton now rated ahead of USA cotton but second behind West Africa.

Weaknesses

- Australia's cotton is not as well regarded as the hand picked African cotton which does not have the same nap problem as Australian cotton.
- Ginning is too fast.

Opportunity

- It is considered Australia could supply a longer staple now being demanded by mills.
- Australia should avoid wet harvest and gin more slowly to meet Taiwanese needs.

Threats.

- USA's industry is so dominant it could over supply the market and cause a price fall.
- Taiwan's demand is declining as the number of spindles declines.
- USA's representatives are continually visiting the Taiwanese and Australia does not do enough of this.
- USA labels its product as US cotton. It enters into contracts with garment makers to ensure products promote US cotton. Promotion funds are welcomed by Taiwan manufacturers and influence buying decisions in favour of US cotton.
- The CIS is seen as a more significant supplier in 1991/92.

HVI Testing.

Taiwan spinners have established an industry testing body. HVI testing will be installed to cross check the USA's HVI results. From February 1992 all cotton purchased by Taiwan will be tested.

Honey dew is a serious problem and varies from year to year. It is anticipated HVI testing will be introduced to measure this condition.

- Spinlab seems to be the preferred HVI equipment.

Manufacturing

Australia's cotton is regarded as of satisfactory strength for high speed, new spinning mills. No dramatic change is seen in machinery which would impact on the current specification of our cotton. Ring spinning is still used in the same way.

Cotton End Use

Taiwanese see man-made fibre as a real threat to cotton as its supply is elastic and is not affected by weather factors.

It does not see cotton growth as automatic. With an expected reduction in spinning capacity it will buy less cotton in the long term.

(5) Thailand

The textile and garment sector is one of the second biggest sectors in Thailand, the other being food processing and canning. The sector has expanded dramatically in recent years (20% annual growth rate) and this is continuing albeit at a reduced growth rate of 15%. The sector now accounts for 14% of total export revenue and employs around one million people.

Around 10 years ago, much of the investment in the Thai textile and garment sector was coming from Hong Kong, in particular, and Japan. More recently Taiwan has been an investment source and local investment has also risen substantially.

Government policy regarding industry has tended not to target specific sectors. However, Government has certainly not discouraged textile and garment sector expansion. As a general policy, the government has aimed to foster exports and to diversify the export product mix. Accordingly, machinery import duties were reduced from 30% to 5% recently.

Although labour rates are still low by world standards, they are now rising substantially albeit from a low base. This trend has been one of the main forces driving the current move by the textile and garment sector to produce higher value products, to enable increased labour productivity rates. This pursuit of higher value products is represented by using better quality cotton fibre and producing garments that embody improved workmanship such as embroidery and lace. A further effect has been an expanded accessories industry.

The Thai textile and garment sector is projected to continue to expand over the next five years, at a rate of 10 % per year. This will involve increasingly capital intensive operations, in response to higher labour rates.

Thailand produces only relatively small quantities of raw cotton, which is grown in the north east of the country.

The amount grown locally has fluctuated somewhat from year to year but has not increased from this plateau. Moreover if it is highly unlikely to in future because of the unsuitable climate, with its high humidity and lack of a cool dry season to hinder boll weevil infestation, which is prohibitively costly to control with insecticides.

Raw cotton production in Thailand in recent years has been:

Table 4.10

Year	(kt)
1984/85	79
1985/86	102
1986/87	57
1987/88	74
1988/89	106
1989/90	86

Source: ICAC

Raw cotton imports supply most of the spinning requirements for cotton. These imports are mainly from USA, Pakistan, (for lower counts) and Sudan, (for higher counts) as follows:

Table 4.11

	USA	Pakistan	Sudan	Australia	Total
1984/85	44	15	33	3	144
1985/86	4	34	57	4	178
1986/87	52	59	59	3	281
1987/88	58	36	27	3	192
1988/89	33	78	54	20	273
1989/90	88	27	25	6	266

Source: ICAC

The increased imports from Australia over the past two years or so reflects two factors:

(1) The overall increase in Thailand's spinning capacity.

(2) The trend in demand towards medium count higher quality cotton based on the trend to higher quality garment production. The higher quality raw cotton fibre sought is in terms of greater fineness, greater strength and greater length. Australian cotton, with its higher quality reputation by general world standards, has being well placed to meet this change in demand.

The Thai textile and garment industry is characterised by a few very large groups (each comprising of many companies) with integrated operations covering spinning, fabric production and garment making, plus many smaller companies which have little or no integration.

The current trend in the Thai textile and garment sector towards high labour rates and increasing capital intensity, and resultant higher quality products will continue in future. A consequence of this, which first began about 18 months ago, is that increasingly, local Thai textile companies are seeking external opportunities for moving the very labour intensive parts of their operations to other countries, which still have very low labour costs. Such countries being targeted now are, Vietnam, Cambodia and Laos, and in future Burma will be included. Another consideration is that the environment started to become an issue around one or two years ago. For example concern is been expressed that dyeing plants in Samutprakarun, a province adjacent to Bangkok, are polluting the river. Eventually, they will have to relocate which will be very expensive.

In future, the Thai textile and garment industry trend to higher value land hence higher value added products will have to be based on increasingly sophisticated machinery. In yarn manufacture, this is clearly going to manifest itself in high speed spinning using rotors, and even to air jet spinning. This will have flow on ramifications for the type of raw cotton required with growing emphasis on higher quality, stronger finer fibre, which Australia is well placed to provide.

Table 4.12

Imports of Cotton into Japan by Key Country

[Metric Tons]	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
USA	378	341	124	326	330	281	348
AUSTRALIA	42	67	116	72	54	97	116
CHINA	20	40	113	133	147	103	45
PAKISTAN	35	51	93	107	60	95	27
USSR	39	15	45	37	16	45	16
TOTAL	724	683	654	816	743	771	675

Table 4.13

Imports of Cotton into Japan by Key Country

[% Terms]	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
USA	52	50	19	40	44	36	51
AUSTRALIA	6	10	18	9	7	13	17
CHINA	3	6	17	18	20	13	7
PAKISTAN	5	8	14	13	8	12	4
USSR	5	2	7	5	2	6	2

Source: ICAC Cotton World Statistics

Table 4.14

Imports of Cotton into Taiwan by Key Countries

['000 Metric Tons]

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
USA	97	160	94	114	91	85	173	114	62	75
AUSTRALIA	0.87	3	15	-	27	36	43	33	31	26
PAKISTAN	2	5	7	-	73	119	90	44	59	14
COTE D'IVOIRE	5	6	3	12	16	19	11	26	32	24
TOTAL	214	260	227	255	341	414	512	394	384	273

Table 4.15

Imports of Cotton into Taiwan by Key Countries

[% Terms]

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
USA	45	62	41	45	27	21	34	29	16	27
AUSTRALIA	-	1	7	-	8	9	8	8	8	9
PAKISTAN	1	2	3	-	21	29	18	11	15	5
COTE D'IVOIRE	9	2	2	1	5	5	5	2	7	8

Source: ICAC Cotton World Statistics

Table 4.16

Imports of Cotton into Korea by Key Countries

['000 Metric Tons]

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
USA	294	304	298	276	286	130	291	297	270	298
PAKISTAN	7	-	5	7	11	62	18	11	40	14
AUSTRALIA	.65	3	7	8	16	54	12	15	42	42
TOTAL	332	326	330	349	358	372	419	426	461	450

Table 4.17

Imports of Cotton into Korea by Key Countries

[% Terms]

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
USA	88	93	90	79	80	35	69	70	58	66
PAKISTAN	2	-	1	2	3	17	4	3	9	3
AUSTRALIA	-	1	2	2	4	15	3	3	9	9

Source: ICAC Cotton World Statistics

4.2 European Markets

The following six European countries, Germany, Greece, Italy, Spain, UK and Belgium, in 1989/90 (latest statistics) accounted for 17.8% of Australia's exported cotton market. This has risen from 6.1% in 1985/86 [See reference 18, p.102].

The UK is the only market which has shown consistent improvement over this period. The other markets have fluctuated up, reaching a peak in the 1987/88 period, with 26.2% of our exported cotton going to these six countries [See reference 18, p.102].

Australia's share of these markets is small, as can be seen from the table 4.18. The greatest market share achieved was in 1987/88, with 10.6% of the Spanish market [See reference 18, p.142].

Turkey's market share in the above eight countries has been declining over the past 10 years. Despite this, Turkey holds a larger share of these markets than Australia, with the exception of Italy and Spain.

4.3 India

India plants more cotton in terms of land than any other country, making up 1/4 of the world total cotton plantings. Yields are amongst the lowest in the world and account for 10% of world production. Only 1% of India's cotton farmers cultivate more than 20ha. Two thirds of farmers works less than 2ha of cotton.

There are a number of constraints on cotton production including:

- Irrigation water - rainfall
- Insufficient fertilizer and pest control
- Better monetary returns for other crops, such as rice, sugar cane and bananas

Ginneries - There are 3,000 gins, two thirds of which have single roller ginstands. Most of the gins are old and slow.

Exports - India has been a net exporter in the 1980's with an average level of 50,000 bales. Japan is the major customer.

Returns to Growers - Yields are particularly doubtful in India, as 70% of the crop is rain grown and this varies with monsoon activity. Farmers are showing a preference for crops with more predictable yields and better returns. The 1992 statistics are expected to show a further reduction in raw cotton production.

Demand - Table 3.13 shows India's cotton spinning capacity has increased steadily in the 1980's and is still increasing.

If the trends continue to develop India will have a significant requirement to import cotton of a type similar to Australian raw cotton. Indian textiles are developing the finer yarns end of the market. The Pakistan cotton industry which is mainly mechanized does not supply a cotton suitable for Indian needs.

ICAC predictions for 1992/93 indicate production will exceed consumption and there will be a surplus to export. Anecdotal evidence suggests there will be a shortfall in production. This presents an opportunity for Australian marketers.

Table 4.18 Australia's Exports to Key Importing European Countries and the Percentage Share of Cotton from Australia

'000 t	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
Germany			0.4	0.62	0.04	1.35	12.81	5.89	1.57	1.35
			0.87%	0.28%	0.01%	0.62%	4.2%	2.7%	0.6%	0.6%
Greece							0.11	1.36	3.84	1.81
							0.2%	4.0%	8.8%	4.6%
Italy					6.6	9.56	3.94	10.29	13.25	8.78
					0.23%	3.6%	1.1%	3.2%	4.0%	2.7%
Spain						0.17	2.95	12.09	5.29	6.7
						0.2%	2.5%	10.6%	6.1%	5.7%
UK						0.07	0.62	0.48	0.55	1.11
						0.13%	1.0%	0.9%	1.2%	3.2%
Belgium						0.08	1.4	2.23	0.72	0.44
						0.2%	2.5%	4.8%	1.4%	1%

Source: ICAC Cotton World Statistics

Table 4.19 Australia's Exports to Europe

'000 t	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
Germany			0.15	0.1	0.15	1.34	18.78	6.59	2.85	5.49
Greece			0.75	0.4	0.06	-	0.57	3.42	3.09	1.45
Italy			0.6	0.43	3.7	6.9	13.57	10.61	11.62	6.97
Spain			0.02	0.05	0.06	0.16	4.24	10.93	6.57	3.5
Turkey						6.74	1.31			
UK			0.02	0.2	0.06	1.09	3.9	0.61	0.47	1.88
Yugoslavia								6.9	2.7	2.43
Belgium						0.4	3.15	2.03	1.12	3.17

Source: ICAC Cotton World Statistics

Table 4.20 Turkish Exports to European Countries and Percentage Share of Total Cotton Imported

'000 t	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
Germany	16.26	23.61	30.41	14.47	15.82	6.91	15.65	4.75	28.73	4.42
	10.3%	12.1%	13.3%	6.7%	6.7%	3.2%	5.2%	2.2%	12.4%	1.9%
Greece						0.67	1.44	0.14	9.06	4.04
						1.6%	3.1%	0.4%	20.9%	10.4%
Italy	28.17	36.09	36.82	20.92	26.19	16.48	36.28	5.74	26.77	7.64
	14.5%	16.5%	15.4%	8.1%	10%	6.2%	10.2%	1.8%	8.2%	2.3%
Spain	7.09	4.36	5.54	8.89	6.54	0.93	6.48	0.13	3.63	1.09
	16%	14.3%	9.2%	11.2%	8.6%	1.1%	5.5%	0.1%	4.2%	0.9%
UK	3.48	5.01	2.75	1.01	0.7	1.05	1.43	0.05	1.37	0.42
	8.0%	10%	4.7%	2.1%	8.1%	2%	2.5%	0.09%	3.2%	0.12%

Source: ICAC Cotton World Statistics

Table 4.21

WORLD TEXTILE FIBER CONSUMPTION AND GDP GROWTH

	1960-70	1970-80	1980-90	1990-2000	
				Baseline	Downside
	Average Annual Percent Change				
Textile Fiber Consumption	3.7	3.1	2.7	2.2	1.9
GDP	5.1	3.8	2.8	3.0	2.0

Source: ICAC textile fiber demand model

Table 4.22

Cotton Spinning Spindles in the World, by Countries

— As of End-December —

(In 1,000 Spindles)

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988
North America									
Canada	791	556	554	554	510	517	519	520	525
Mexico	3,425	3,035	3,035	2,921	2,925	3,460	3,469	3,559	3,600
U. S. A.	17,298	17,005	16,296	15,195	14,630	13,876	13,709	13,156	13,052
Others	734	750	823	775	776	778	761	765	1,095
Total	22,291	21,348	20,708	19,445	18,841	18,631	18,458	18,000	18,273
South America									
Argentina	1,141	1,150	1,150	1,024	927	935	1,025	1,025	1,210
Brazil	4,515	4,647	4,716	4,768	4,768	4,768	4,968	5,079	5,830
Colombia	912	917	831	858	948	962	875	865	895
Others	2,102	2,147	2,149	2,169	2,103	2,087	1,991	1,966	1,742
Total	8,671	8,861	8,846	8,919	8,746	8,742	8,859	8,935	9,729
Western Europe									
Belgium	489	450	424	344	318	297	285	282	272
France	2,250	1,994	1,776	1,622	1,511	1,367	1,270	1,163	1,027
Germany, F. R.	2,510	2,425	2,259	2,134	1,969	1,923	1,918	1,876	1,608
Italy	3,414	3,148	3,138	3,111	2,721	2,322	2,233	2,155	2,111
Netherlands	184	157	138	103	101	81	69	69	49
Portugal	[illegible]	[illegible]	1,840	1,520	1,520	1,520	1,525	[illegible]	1,586
Spain	[illegible]	[illegible]	1,943	1,864	1,855	1,831	1,834	1,844	1,842
United Kingdom	[illegible]	[illegible]	1,046	929	916	884	858	815	765
Yugoslavia	1,341	1,341	1,243	1,040	1,640	1,040	1,527	1,525	1,537
Others	2,921	1,961	2,907	2,896	2,827	2,793	2,448	2,596	2,734
Total	18,735	16,157	16,684	15,593	14,791	14,061	13,567	13,748	13,365
Eastern Europe	8,330	8,440	8,299	7,184	7,113	6,933	6,770	6,766	6,656
U. S. S. R.	17,470	17,130	17,640	18,500	18,400	18,060	18,000	14,000	14,000
Asia & Oceania									
China P. R.	17,800	[illegible]	19,020	21,459	22,100	22,625	24,125	26,110	31,855
China (Taiwan)	[illegible]	[illegible]	3,436	3,661	3,721	3,597	3,992	4,077	4,077
Hong Kong	781	[illegible]	563	474	421	344	317	325	304
India	21,578	21,757	22,566	23,415	24,421	24,742	25,129	26,283	26,451
Japan	10,432	10,421	10,368	9,907	9,764	9,568	9,162	8,943	8,810
Korea, Rep.	3,157	3,192	3,112	3,243	3,325	3,301	3,313	3,492	3,590
Pakistan	3,997	4,169	4,271	4,291	4,331	4,430	4,625	4,372	4,609
Turkey	3,104	3,116	3,130	3,136	3,143	3,225	3,270	3,640	3,646
Others	8,335	9,055	9,803	10,294	10,251	10,362	10,373	10,535	11,035
Total	71,287	73,882	76,209	79,895	81,707	82,534	85,246	88,040	94,640
Africa									
Egypt	2,660	2,619	2,720	2,749	2,727	3,042	2,880	2,880	2,879
Others	4,045	4,211	4,279	4,276	4,277	4,369	4,360	4,582	4,678
Total	6,705	6,830	6,999	7,025	7,004	7,411	7,240	7,462	7,557
World Total	153,112	153,698	155,345	156,562	156,212	156,312	158,540	156,991	164,281

Remarks : Number of three and four-cylinder cotton system spinning spindles in place. Rayon spindles installed in cotton mill are included. Open-end rotors are included.

Source : International Textile Manufacturers Federation

5. AUSTRALIA'S RAW COTTON MARKETING SYSTEM

5.1 Introduction

This section provides a brief audit of the Australian raw cotton marketing system. Australia's raw cotton marketing system is unique in many ways. It is a free market system, devoid of government intervention and artificial price or subsidy distortions.

It is this characteristic that has attracted, in varying degrees, all main international cotton merchants to compete for a share of the Australian crop.

Australia's political stability, western style of business and finance, geographic advantage and quality of cotton, are all strengths to be exploited.

5.2 Marketing System Overview

(1) Marketing System Characteristics

. A free market system
  - Free competition amongst buyers
  - Large number of sellers (approximately 900 growers), although around 50% or so of total seed cotton production is accounted for by a few large/corporate growers
  - Small number of buyers (marketers and merchants)
  - Prices reflect international raw cotton market supply and demand conditions and prices

. Absence of government involvement in marketing
  - Means growers need to be more market/marketing oriented than otherwise
  - Growers are more self-reliant
  - Note: although the arrangements ceased in the mid 1980's, domestic spinners used to have to pay import parity prices for Australian cotton, whereas they now pay (lower) export parity prices
  - Note: also, until recently (1990), ginners were allocated quotas, in an orderly way, to supply the local market

. Price averaging options exist
  - ie Pools (seasonal and call)

. Risk management options are available
  - Price hedging (futures and options)
  - Currency management

(2) Risk Management Need and Use

. Risk management is needed because international raw cotton prices are highly volatile
  - Large fluctuations within and between years
  - eg, In the past 80 years, the average yearly range between the high and low price received by US growers has been 80 cents per pound. Over the past three years, the price has ranged from a high of 92 cents per pound to a low of 30 cents per pound.

. A study in 1989 by the New York Cotton Futures Exchange showed that Australian cotton was the highest user of New York Cotton Futures, apart from US growers. Given a large proportion of Australian cotton is traded between merchants, and may go through up to five transactions before reaching a mill, it is easy to see why a crop of 1.5 to 1.8 million bales can be such a large part of New York Cotton Futures trading.

. In Australia, a reasonable estimate of the direct use of futures (New York Cotton Futures) in trading cotton is:
- Growers: around 10% to 20% (sales to merchants/marketers)
- Marketing pools: around 50% hedged
- Merchants/marketers: around 90% to 95% (sales to mills)

(3) Main Buyer Category

(i) Australian Marketers/Merchants

Namoi Cotton Co-operative Ltd:
. The largest single marketer of Australian cotton, grower owned, major ginner.

Queensland Cotton:
. Newly corporatised marketer and ginner, obtaining cotton predominantly from Queensland, but opening offices in NSW.

AUSCOTT:
. Californian owned (J G Boswell Company), grower, ginner and marketer.

Colly Farms:
. Owned by Commonwealth Funds Management Limited, largest grower in Australia, ginner, marketer.

Cotton Trading Corporation (CTC):
. Grower owned and funded, involved in ginning and marketing.

(ii) International Merchants

Dunavant Enterprises:
. US based merchant and ginner.

ContiCotton:
. US based merchant, owned by Continental Grain.

Volkart:
. Swiss based merchant, specialising in cotton and coffee.

Weil Bros - Cotton Aust.:
. Newest entrant, US based.

Ralli Brothers & Coney:

. Had a long standing arrangement with the former Queensland Cotton Marketing Board, now obtaining cotton from both Queensland and New South Wales, UK based.

Allenberg & Hohenberg:

. Limited presence in Australia, US based, owned by Cargill.

. A number of predominantly Swiss merchants utilise small trader firms in Sydney (eg: Commicot) to source cotton from Australian producer/processors.

(4) Merchants

Merchants, by definition, are traders. Their skills are in their ability to buy a commodity for a lower price than they can sell it for.

In Australia, the merchants have:

(1) Increased competition within the industry.

(2) Introduced cash offer sales.

(3) Introduced faster payment for purchased cotton.

(4) Supplied a bench-mark for growers when comparing daily prices.

(5) Forced Australian marketers/merchants to upgrade their skills.

However, with the exception of Dunavant Enterprises, which owns and operates two gins in Australia, the merchants financial commitment to the Australian industry is minimal. Their prime loyalty has to be to their overseas owners.

5.3 Selling and Pricing Arrangements

(1) Selling and Pricing Alternatives

The Australian raw cotton marketing system is characterised by the range of selling and pricing alternatives, although many of the more sophisticated arrangements are little used. The alternatives include:

. Crop sale alternatives
  - Fixed bale number
  - Fixed acreage
  - Balance of crop
  - Whole crop

. Pricing (Grower Payment) Alternatives
  - Pool pricing (price averaging)
    - Seasonal pool
    - Call pool

  - Individual pricing
    - Cash offer
    - Sell futures
    - Buy put options
    - Cash offer plus buy put options
    - Sell futures plus buy call options
    - Sell call options
    - Option combinations (eg collars (buy puts and sell calls), spreads)

(2) Pricing Mechanisms

Our pricing systems are reliant on a futures market in New York, the New York Cotton Futures Exchange, which is made up of representatives from the major US merchant houses.

The two most quoted pricing mechanisms are the New York Cotton Futures and the Liverpool "A" Index. However, these two pricing mechanisms do not totally represent international cotton spot prices.

The New York Cotton Futures price is influenced by the US Farm Program and speculator trading. The "A" Index is an average of prices offered, not actual prices paid. (See Section 3.1.5).

(3) The Australian Basis

Much has been said of late about the Australian "basis". It represents actual cash price, less futures price. The selling basis is generally a combination of costs to handle, ship and finance the cotton, and is expressed as points on New York Cotton Futures. Historically Australia's basis for a middling 13/32 G5 cotton has been between 600 to 800 points on New York Cotton Futures. Currently, it is historically low at 300 to 400 on New York Cotton Futures. Why? Many factors impact on the basis, such as:

. The US Farm Bill advertises an adjusted world price (AWP) which sends a signal to buyers that either cotton will be cheap or expensive. Currently it is cheap.

. Poor crop estimates - buyers still expect Australia to produce 1.9 million bales.

. Sellers caught on the wrong side of the market, needing fast sales reduce their asking price.

. Sellers needing cash flow reduce the basis to ensure sales.

All these factors impact on the price available to the grower.

The current basis level represent levels applying when New York Cotton Futures were $0.89 US/lb. New York Cotton Futures are now approximately $0.25US/lb lower but the basis has not strengthened. This should be a major concern to all in the industry. However, due to a lack of industry cohesion, the problem cannot yet be tackled from an industry-wide standpoint.

5.4 Changes Needed to the Marketing System

Comment in this Section 5.4 is also covered in detail in Section 6.

Our marketing system is as old as the international cotton market. It was devised and set up by merchants. For all its good points the Australian marketing system still represents a system based on centuries old principles. Such principles do not reflect the value of cotton to a modern spinner, and do not properly reflect prices paid to Australian growers. Moreover, these principles alienate the grower from the end user.

The current cotton marketing system, based essentially on subjective evaluation criteria such as grade and staple, and micronaire, represents the main obstacle to compensating growers for producing cotton with fibre characteristics desired by spinners. It also sends incorrect signals to ginners in regard to processing the fibre in a way that preserves the cotton's intrinsic fibre properties.

The "New Era" electronic data information systems now being supplied with the latest generation of spinning machinery are putting entirely new evaluation terms in the hands of the textile industry. This requires spinners to concentrate on improving their knowledge of raw material properties and their interaction in the processing system.

What the industry needs to propel itself into the future is a new classing system which allows spinners to evaluate fibre properties necessary to produce yarns to their buyers' (the spinners) specifications and pay growers accordingly.

This concept will take some time for the industry to accept as it represents such a radical departure from the current system but it must be realised that both the micronaire measurement and Pressley strength measurement took many years to be accepted by the world market.

Many merchant firms will argue that these changes are unnecessary and costly to the industry but most already utilise HVI testing themselves, in their sales to overseas agents and spinners, to maximise their profits.

In 1991, it became mandatory in the USA to use HVI testing to qualify for participation in the Loan Program. Thus the world's dominant cotton exporter has seen the need to make far-reaching changes to its cotton marketing system. It has recognised "a competitive advantage". The Australian industry must not be left behind.

Many will point to some short-comings of this new system and with some justification. HVI testing has problems with repeatability and comparability, but an industry directive on set standards for sample selection, calibration and testing conditions, would answer these deficiencies.

More work is needed on testing for fineness and maturity, as well for as short fibre content but this is already in the pipeline, both internationally and in Melbourne at the Textile Fibre Research Institute. If Australia committed itself to this system as an industry it would help to accelerate this research.

The old system has served our industry well to date, but with new spinning technology being increasingly adopted, it will no longer serve to advance our industry into the future. The new marketing system must be "spinnability - orientated", based on objectively measured, market driven, fibre characteristics. This will ensure plant breeders and growers will continue to breed and produce cotton required by spinners, cotton that will improve our customers' profitability, enabling them to pay the premiums that cotton marketed through this system can and will provide.

6. COTTON CLASSIFICATION AND MEASURING TECHNOLOGY REVIEW

6.1 Introduction

The objective of this section is to:

> "Assess the impact, relevance and market response to new technologies for measuring cotton fibre" (Study Objective No. 3)

It will endeavor to provide some answers to key questions, such as:

- What are the ramifications of the new cotton spinning technologies for cotton fibre quality characteristics?
- In future, what cotton fibre quality characteristics will determine its demand and be used as a basis for marketing cotton?
- What classing system will best serve Australia's cotton industry in future?
- What cotton fibre measuring technologies will be used in future and what will be their impact?

This review of cotton fibre measuring technology in Australia, now and in the future, starts from the fundamental tenet for commercial success:

- Give the market what it wants. That is, supply the market for Australian raw cotton with the type of cotton it wants, in accordance with the classification systems and measuring technology required by the market.

Ultimately, of course, growers will produce the cotton which maximises their gross margin at the farm gate, which is a combination of unit price times yield, less variable costs. The best way to help ensure gross margins are maximised, however, is for growers and breeders to be particularly attuned to market place requirements and trends, and to produce accordingly.

Another important point to note is that although generalisations can be made and trends can be identified regarding the market importance of cotton fibre characteristics there is a market for all types of cotton. This is because different manufacturing technologies (especially spinning), and different end product uses, have different orders of priority regarding cotton fibre characteristics, and different cottons can be blended together, or blended with other fibres (such as man made fibre (MMF) or wool).

6.2 Cotton Quality Characteristics

There are a range of raw cotton quality characteristics which determine its value, both in terms of its various end product uses, and its suitability for various manufacturing processes. This is discussed further in Section 6.3. The main characteristics, in no particular order are as follows:

(1) Fibre Strength
Fibre strength (or breaking tenacity) is measured as the force required to break a sample fibre of a certain mass. It is commonly expressed as cN/tex (or grams/tex). Typical values are around 20 to 25 cN/tex.

(2) Fibre Elongation
Fibre elongation is a measure of the extra length to which the sample fibre can be extended before it breaks. It is expressed as a percentage of the unextended length. Typical values are around 7%.

(3) Fibre Fineness and Yarn Fineness
Fibre Fineness can be defined in two ways [See reference 32]:

(i) Biological (Genetic) Fineness

- This can be measured as the perimeter of the cross section of the fibre, expressed in microns (micrometres). Typical fibre perimeter values for USA upland cotton are 47 to 60 microns.
- Alternatively, biological fineness can be measured as the diametre of a circle having the same perimeter as the fibre cross-section.

(ii) Physical (Gravimetric) Fineness

- Physical fineness is measured as linear density, or mass per unit length.
- Technically, linear density measures coarseness but it has become customary to think of linear density as fineness, even though fine fibres have smaller linear density values than coarse fibres.
- The commonly used system for expressing the physical fineness or linear density of fibres (and of filaments, slivers and yarns) is the tex system. The basic unit is the tex, which is the mass in grams of 1 kilometre of the product. Multiples and sub-multiples of the tex are kilotex or ktex (kilograms per kilometre), and millitex or mtex (milligrams per kilometre or micrograms per metre).
- Typical USA Upland cottons show physical fineness in the range of 150 to 190 mtex.
- The historic English unit of expression is micrograms per inch.
- The denier system, the principal system used for MMF and silk, is expressed as the weight in grams of nine kilometres of the product. Thus, a denier measure of 1 has a tex measure equivalent of 0.111 (1 divided by 9), or 111mtex.

Both average fineness and fineness distribution are attributes of fineness.

This is also a convenient point to discuss briefly the way in which yarn fineness is measured. There are two grist system methods for this:

(1) The Indirect System
- Also known as "count"
- Based on length per unit mass (the number of standard length units per unit standard mass)
- Used for most spun yarns, such as cotton and wool
- For cotton, the (British) hank system is a measure of the number of standard 840 yard hanks of yarn per pound weight. Thus, 10 count yarn has 8,400 yards per pound.
- The smaller numbers (or counts) mean heavier or thicker yarns, and the larger numbers (or counts) refer to finer yarns. The count is inversely proportional (hence, indirect system) to the size (or thickness) of the yarn. Thus, 100 count yarn is 10 times finer than 10 count yarn.

(2) The Direct System
- Also known as linear density system
- Based on mass per unit length (the number of standard mass units per unit standard length)
- Used for MMF, silk and jute
- For man made filament yarns and silk yarns, the system is expressed in deniers, where the denier number is the number of standard unit weights of 0.05 grams per 450 metres of length (or the weight in grams of nine kilometres)
- The smaller numbers relate directly to the finer yarns, and the larger numbers mean heavier or thicker yarns.

(4) Fibre Maturity

Fibre maturity is usually defined as the degree of secondary thickening of the fibre wall. However, to what degree a fibre is deemed mature (ie has an acceptable degree of fibre wall thickening) with regard to mechanical processing and chemical finishing is still unknown, or at least unpublished [See reference 24].

Cotton fibres grow in two major phases. Fibre elongation is the first phase, occurring over 23 to 35 days. The second phase, occurring over 35 to 50 days and ceasing a few days before the cotton boll opens, involves secondary thickening of the fibre wall, starting on the inner surface of the wall [See reference 25, p.60].

Fibre maturity is expressed as a maturity index or a maturity ratio.

Both average maturity levels and maturity distribution are attributes of maturity.

(5) Fibre Length

Fibre length (or staple length) is usually expressed in inches (or millimetres). Official USDA standards for length range from below 13/16 inches to 1 1/2". USA Pima cotton varieties have greater staple length than USA Upland cottons.

Typical staple lengths for Australian cotton are 1 1/16" to 1 5/32" for irrigated cotton and 31/32" for dryland cotton.

Both average fibre length and length distribution are attributes of fibre length. Length distribution covers length uniformity (expressed as uniformity ratio (UR) or uniformity index (UI)) and short fibre (less than 12mm) content (expressed as the percentage by weight of short fibres in the sample, or as a SFI (Short Fibre Index)) [See reference 31, p.85].

(6) Non-Lint Content

This covers:

(i) Trash
- Leaf, seed, stem, grass and bark.

(ii) Dust and dirt

(ii) Foreign matter

Non-lint content is expressed as a percentage of the total mass of the sample.

(7) Colour

Cotton is coloured white when the boll opens. However, white cotton can lose its brightness and become a dull greyish colour due to rain exposure and microorganism action [See reference 31]. Cotton can also become discoloured or spotted due to insect attack, fungal action and soil exposure.

Discolouration can also be caused by oil or grease contamination from harvesting machinery, green leaves, and other crushed parts of the cotton plant.

(8) Neps Content

Neps are small knots of fibres which appear as dots in the lint. They are related to maturity, or, more specifically, the lack of it. Immature fibres collapse and become entangled during processing, forming neps. Neps can form during operations such as machine harvesting, ginning, dyeing, cleaning and, in particular, carding.

Neps, it should be noted, are manmade - they do not occur in seed cotton.

Both neps content and distribution are factors to consider. Neps are measured by carding a web and counting the neps per unit of area [See reference 6].

(9) Naps Content

Naps are large tangled fibre clusters, often caused by ginning wet cotton.

(10) Stickiness

Stickiness is the sugar content of a cotton sample. It is caused by plant sugars (a `general' stickiness) and honeydew (a localised or spotty stickiness due to insect exudates and other sources). It is expressed as a percentage (sugar content) of a 10g sample, or by code numbers if spotty in nature.

(11) Other Quality Characteristics
Other quality characteristics include:
(i) Friction
- Largely related to fibre surface wax
(ii) Elasticity
(iii) Bulk or Crimp
(iv) Degree of Microbiological Infestation
- Presence of bacterial infestation (outside or inside) the cotton fibre (cavitoma attack).

In summary, the determinants of the main cotton fibre quality characteristics are:

(1) Variety
. Fineness
. Length

(2) Farm Management
. Maturity (harvesting time)
. Stickiness (aphid control)
. Trash content (harvesting method)
. Colour (insect and fungal control)

(3) The weather
. Colouration (rain causes discolouration)

(4) Ginning
. Short fibre content (increased by excess ginning)
. Neps content (increased by excess ginning)
. Trash content

6.3 Market Importance of Cotton Quality Characteristics

6.3.1 The Impact of Quality Characteristics

A single cotton fibre is actually a single cell. Whilst it is growing, the fibre is akin to a cylindrical tube, with primary and secondary walls. After harvesting, the fibre tends to become flat like a ribbon, and is twisted along its length. The number of twists varies, from 150 to 300 per inch, depending on plant variety. The finest cotton varieties average around 300 twists per inch, and the poorest (coarsest) around 150. It is these twists which give cotton its excellent spinning qualities, as they provide the friction to cause the fibres to cling together.

The physical quality characteristics of cotton lint have a fundamental impact on [See reference 17]:

(1) Its most appropriate end use

(2) The most appropriate yarn textile and garment manufacturing process and conditions

(3) Yarn, textile and garment manufacturing behaviour and efficiency

(4) Yarn, textile and garment manufacturing costs

(5) Yarn, textile and garment quality

(6) Yarn, textile and garment value

(7) And, ultimately raw cotton fibre value.

There are two main aspects of each cotton fibre quality characteristic of a sample of raw cotton that concern a spinner and determine its spinnability, and both are important:

(1) The average measure of each statistic.

(2) The uniformity (evenness, distribution, variability, or coefficient of variation) of each fibre characteristic. (see Section 6.3.2 for further comment on uniformity).

The impact of the main fibre quality characteristics includes the following [See reference 17] [See reference 14].

(1) Fibre Strength

- Affects fibre breakage patterns during manufacturing and yarn and fabric (tear and tensile) strength
- Yarn strength is directly dependent on fibre strength. Yarn strength also depends directly on the number of fibres in the yarn cross section, and on the amount of twist inserted during spinning.
- Stronger fibre is essential for spinning finer counts at elevated rotor speeds for rotor (or open end) spinning systems.

(2) Fibre Fineness

. Affects neps, spinning efficiency (especially with rotor spinning) and yarn and fabric quality.

. Fibre Fineness determines the technical spinning limit (the yarn count or fineness that can be spun). New and emerging high capacity yarn manufacturing technologies (such as high speed rotor, friction and air jet spinning) are establishing new requirements for cotton fineness. In any fine-count spinning process, it is essential to maintain a sufficient number of fibres in the yarn cross section. The minimum practical threshold is around 80 fibres in the yarn cross section for ring spinning and 100 or more in rotor spinning. If the number of fibres in the cross section is less than these thresholds, the yarn will not spin properly and will break easily. Finer fibre means more fibres in the cross section of a yarn of a given count. Clearly, for fine yarn counts, the spinning limit depends directly on fibre fineness.

. Fibre fineness also determines the lowest practical yarn twist level. Lower yarn twist levels in spinning translate into manufacturing advantages (higher delivery speeds, and hence higher unit productivity and lower unit costs), as well as into product benefits (softer yarns of improved `evenness' without loss of strength, and hence softer fabric handle, improved drape and better cover). This is particularly desirable in knitgoods, as well as in many types of woven fabrics. All these considerations are very important to the spinner.

. More fibres in the yarn cross section also increases yarn and fabric lustre.

. Despite the importance of fineness, the cotton industry has not been as sensitive to fibre fineness [see Sections 6.3.3, 6.4 and 6.5] as the wool industry (where fibre diametre is a principal determinant of market value), and more recently the MMF industry. MMF producers have made progress in recent years in increasing fibre fineness from greater than 2 denier to 1.5 denier, and now 1.2 denier as the norm for use in blended yarns for garments. Applications for even finer MMF fibres ('micro` fibres of less than 1.0 denier) are being developed.

(3) Fibre Maturity and Neps

. Fibre maturity affects neps content and dyed fabric appearance.

. Neps incorporated into yarns and fabrics downgrade their value. Neps also affect dyeability, because immature fibres take up less dye causing a spotting effect on the surface of the finished fabric [See reference 25].

(4) Fibre Length and Length Distribution (especially Short Fibre Content)

. Affects spinning efficiency and yarn and fabric quality.

. Longer fibre has little effect on the strength of coarser yarns. But, as yarn count becomes higher (finer), fibre length becomes increasingly important.

. Increased short fibre content causes waste and reduces yarn strength. This, in turn tempts the spinner to relieve the problem by raising the synthetic fibre content of a blended yarn, to the disadvantage of a cotton seller [See reference 34].

(5) Non-Lint Content
- Affects manufacturing mass loss (re waste), manufacturing performance, and yarn and fabric faults.

(6) Colour
- Affects fabric colour, bleaching and dying.

(7) Stickiness
- Affects manufacturing efficiency.

6.3.2 Spinning Technology Evolution and Requirements

The history of cotton fibre as a textile raw material dates back to at least 5000 years ago, in Pakistan, Egypt and Mexico. Gradually, after countries began to produce cotton, although it was many centuries before cotton became a popular fabric. The cotton textile manufacturing industry began in Britain (in Lancashire and East Anglia, where a wool textile industry already existed), in the mid 1600s.

It is important to note that the evolution of modern spinning technology, which began in the 18th century, has been driven fundamentally by financial and economic pressures. Of particular importance has been the need for spinners to contain unit production costs, in the face of constantly rising labour costs. Inevitably, this led to the continual search for machinery technology improvements, to enable an ongoing process of substituting capital for labour, and thereby raising labour productivity rates (ie greater output per unit of labour). These technology improvements have involved even faster and more automated spinning methods.

This process continues today and will continue in future, with lower-cost spinning systems entering the market and gaining significant market share, even though the yarn it produces may sometimes be of different quality.

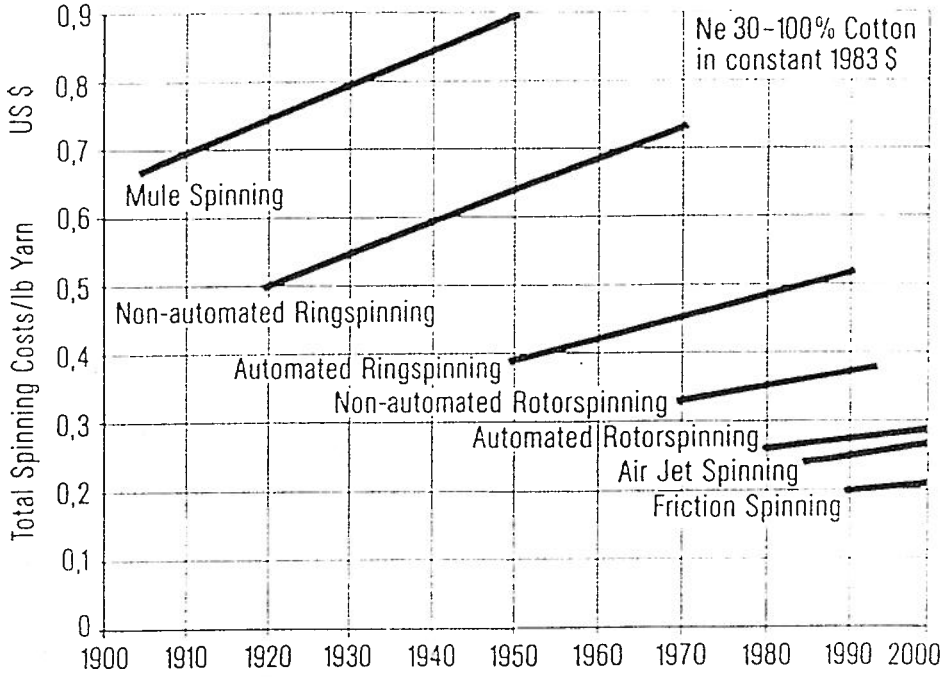
For centuries, fibre has been spun into yarn using hand spinning techniques, such as the spindle and spinning wheel. In 1769, Arkwright invented the spinning jenny, a spinning machine with more than one spindle, enabling one person to spin several yarns at once. This commenced the first main phase of the spinning evolution.

In the 19th century, the industrial revolution produced two types of power-driven spinning machines: the mule spinner (the second spinning evolution phase) and the ring spinner frame (the third spinning evolution phase). In the first half of the 20th century, the costlier mule spinner was replaced by the faster and easier to operate ring spinning machines, even though the mule spinner produced superior yarn [See reference 14]. The 1970's and 1980's saw the fourth main phase of this evolution, whereby large sections of ring spinning were displaced by rotor spinning.

Figure 6.1, illustrates graphically this spinning technology evolution, whereby unit spinning costs (total cost/lb yarn), in **real terms** have declined with the advent of new spinning technologies. This can be outlined as follows;

- By around 1950, spinning a pound of 30's cotton yarn on a non-automated ring spinning frame cost only 72% of the cost of producing the same yarn on a mule spinner.
- By around 1975, making a pound of 30's yarn on an automated, high speed ring spinning framing was 25% less than the cost on a slower, non-automatic ring spinning frame.
- By around 1979, a second generation rotor spinning frame lowered spinning costs by a further 29% compared with the best ring frame.
- By 1984, fully automated rotor spinning reduced spinning costs to 54% of that of the most modern ring frame.

Figure 6.1



Source: Deussen, H., "Some Thoughts on the Role of Cotton Spinning in New Spinning Technologies", Schlafhorst Dokumentation, No 10, West Germany, 1985.

The three newer technologies of air jet, friction and wrap spinning, appear to have limited potential for expansion because of their yarn properties or costs, although they may occupy certain niches in the market [See reference 13]. No other, novel spinning technologies are on the horizon at present.

Thus, for the foreseeable future at least, ring and rotor spinning are likely to continue to be the two dominant spinning technologies. Hence, the continuing spinning evolution, for he foreseeable future, will take the form of modifications and improvements to existing technologies. For example, it is highly likely that, in the next three or four years, there will be an engineering breakthrough using "novels" to overcome the problem of "wrapper fibres" (individual fibres and groups of fibres wrapping around the spun yarn, leading to a fabric which is less soft to handle) in rotor spinning [See reference 16]. Once, achieved, this breakthrough in rotor spun twist insertion will enable rotor spinning to spin higher quality, finer fibre for example, strength of 26 to 27 g/tex, micronaire of 3.5 and length of 1 1/8 to 1 3/16 inches), as well as fibre of slightly lesser quality.

The two dominant spinning technologies for the past decade or so, have been ring spinning and rotor (or "open end") spinning. Ring spinning is the older and more versatile method of converting staple fibre into yarn. But, it is also a more expensive method of inserting twist, as rotor spinning is much more efficient and faster, having up to six times the productive capacity.

Rotor spinning is a shorter process than ring spinning and has a much higher yarn production rate because the system uses a high speed rotor, instead of a spindle, which revolves up to 10 times faster that the spindle used in ring spinning. The resultant rotor spun yarn tends to be slightly weaker, and coarser, but is more uniform than, ring spun yarn. Rotor spun yarns are used in many textile products, such as denim, towelling and underwear. Ring spun yarns tend to be used for high quality fabrics, or when strength is particularly important, such as for sewing thread [See reference 6].

The benefits of rotor spinning are [See reference 13] its greater productivity and lower conversion costs (compared with ring spinning); its flexibility (with the exception of very fine and very coarse yarns, it covers almost the entire spectrum of textile products; its versatility (it can handle a variety of raw materials, and cotton has been the most widely used fibre on the rotor system).

These benefits, particularly the much greater productivity, have been the driving force for the large growth in rotor spinning. Since its introduction in the early 1970's, rotor spinning has gained an increasing share of world spinning capacity. This has occurred in particular in the highly industrialised countries of the United States and Western Europe, and a similar growth curve started several years ago in Asia [See reference 13].

The spinning capacity (for all fibre types) accounted for by ring and rotor systems is summarised in Table 6.1. The penetration of the spinning market by 1988 by the rotor system was estimated to be 36% in the USA and 40% in Europe, with both continents projected to have 60% of their production accounted for by rotor spun yarn by the year 2000 [See reference 13].

The increase in rotor spinning's world market share appears to have plateaued in the past two or three years, in part due to the excess supply of ring spun yarn and consequent lower ring spun yarn price. However, rotor spinning's market share is expected to increase further, when the price of ring spun yarn rises, and particularly when the "wrapper fibre" problem technology breakthrough occurs.

Table 6.1

TOTAL FIBRE RING AND ROTOR SPINNING CAPACITY

	USA	Europe *	Asia/Oceania	World *
Spinning Capacity Installed to 1988				
Ring Spindles (millions) (short staple)	10.5	11.3	89.8	139.3
Rotors ** (millions)	0.9	0.6	1.0	2.7
New Installations 1980-1989				
Ring Spindles (millions) (short staple)	0.9	3.6	15.3	25.4
Rotors ** (millions)	0.7	0.7	0.9	2.7
Replacement Plant in the Past 10 Years				
Ring Spindles (%) (short staple)	8	32	17	18
Rotors (%)	78	117	90	98

* Excluding Comecon
** Note: 1.0 million rotors has the same spinning capacity as approximately 5.3 million spindles.

Source: Otto, S., "A Spinner's Wish List", Cotton International 1992, Meister Publishing Company

The evolution of spinning technology has had definite ramifications for the fibre quality characteristics preferred by spinners, and in particular, in what order of priority the characteristics are required. The main fibre properties which determine the spinnability of cotton are strength, fineness/maturity, length, uniformity and cleanliness, but the relative importance of these has changed as spinning technology has evolved.

The importance of the main cotton fibre quality characteristics to various spinning systems, starting with the most important characteristic, have been summarised in Table 6.2. Apart from the emergence of uniformity as a property now of major importance, Table 6.1 remains relevant today.

Table 6.2 Importance of Cotton Fibre Quality Characteristics

Ring Spinning	Rotor Spinning	Air Jet Spinning	Friction Spinning
1. Length/ Uniformity	1. Strength	1. Fineness	1. Friction
2. Strength	2. Fineness	2. Cleanliness	2. Strength
3. Fineness	3. Length/ Uniformity	3. Strength	3. Fineness
	4. Cleanliness	4. Length/ Uniformity	4. Length/ Uniformity
		5. Friction	5. Cleanliness

Source: Deussen, H., "Some Thoughts on the Role of Cotton Spinning in New Spinning Technologies", Schlafhorst Dokumentation, No 10, West Germany, 1985.

The notable features of the above fibre characteristic importance sequence are:

- The lesser importance of fibre length / uniformity for rotor, air jet and friction spinning, compared with ring spinning.
- The greater importance of fibre strength and fineness for rotor, air jet and friction spinning, compared with ring spinning.

A limitation, to date, of rotor spinning is that the minimum number of fibres in the cross section required to produce an acceptable yarn (particularly regarding strength) is 20 to 25% higher than in ring spinning (see Section 6.3.1). This means it is harder to spin fine count yarns using rotor spinning. However, finer fibres enable finer count rotor spun yarns.

In addition, rotor spinning uses a different twist insertion method, which allows higher yarn delivery speeds, giving much higher productivity and lower costs. However, the rotor spinning method of twist insertion generates a yarn structure which is less efficient at utilising the strength of the individual fibres [See reference 8]. Stronger fibres are therefore needed to ensure rotor spun yarn is of satisfactory strength.

Also, because of its different spinning method, rotor spinning can use shorter fibres to produce yarn of similar strength [See reference 8]. However, whilst fibre strength and fineness are very important properties for ring spinning, fibre length becomes increasingly important for finer count yarns.

The ITMF Spinners Committee has given detailed consideration to the relative importance to spinners of cotton fibre quality characteristics. The ITMF Spinners Committee in an influential international cotton organisation, where membership includes the major raw cotton importers (such as Japan and EC countries) the United States and Australia. The Committee's order of priorities for cotton fibre quality - [See reference 21].

(1) Strength and Elongation
- The Committee considers strength to be overwhelmingly the most important characteristic

(2) Fineness and Maturity

(3) Length and Short Fibre Content
- The Committee says that what is important to spinners is a true measure of the content of fibres below 0.5 inch (or 12.5 mm) [See reference 21].

(4) Trash and Colour
- The Committee places trash and colour in last place (although that is not to say they do not matter).

The Committee's current four main recommendations on cotton fibre properties, to Australia's cotton industry, are [See reference 21]:

(1) A need for more fibres in the cross section of the yarn (ie finer fibre). Hence, a change in emphasis in varietal development from (breeding) coarser to finer fibres, whilst maintaining maturity and strength.

(2) A need to improve fibre elongation, whilst maintaining strength.

(3) A need for greater evenness or uniformity (lower coefficient of variation) in terms of strength, fineness, maturity, and length (and generally for any of the required fibre characteristics).

(4) A need for lower short fibre content and less neps.

Given the recent and current increasing trend to fully automated spinning mills (both ring and rotor systems), an increasingly important aspect of cotton quality is fibre uniformity or evenness with respect to all the major fibre characteristics (such as length, strength, fineness and maturity).

Another current trend is for new spinning plants to demand increasingly higher quality cotton fibre.

Following the ITMF Spinners' Committee's visit to Australia in April 1991, its observations included [See reference 22]:

(1) Overall, Australia's cotton industry is moving in the right direction, especially in regard to varietal development, which the Committee believes has been geared to meet its four main recommendations on cotton fibre properties (outlined above).

(2) As cotton is usually harvested only once in Australia, utmost attention should be paid in future to choosing the right picking time. This has a considerable bearing on maturity, which is given a high priority by spinners as the factor most responsible for even dyeing affinity.

(3) New, high capacity gins pose an inherent threat to fibre quality.

(4) Given the rising quality consciousness of spinners and the recent introduction of HVI to market virtually the whole USA crop, the practice of custom ginning (ginning to spinner specifications) is being revived. However, to properly implement custom ginning, communication channels along the marketing chain and back to the grower, need to be improved.

(5) Given some of the most important fibre quality characteristics are still not fully HVI testable (such as, maturity and short fibre content), it is still essential for each spinner to be able to identify where the cotton has been ginned, and this means each bale should be tagged to allow such identification.

(6) Australia should keep abreast of the cotton marketing developments in the USA concerning HVI, which heralds the beginning of a new era in cotton marketing, which the ITMF Spinners Committee has sought for many years.

(7) Australia will need a much broader HVI installation base, if it is to take full advantage of the new era of spinnability - oriented cotton marketing.

(8) In the cotton contamination survey conducted every second year by the ITMF with spinners around the world, Australian cotton has traditionally received high marks for being contamination free, and not affected by stickiness. The Committee recommended that Australia spares no effort in future in preserving the good reputation of its cotton in this regard.

(9) The Committee recommended the exclusive use of cotton as bale packing material in future, as this helps ensure fibre cleanliness and reduces the growing problem of packing material disposal.

During the Committee's visit to the United States in January 1991, its comments included [See reference 21]:

(1) Emphasis should be placed on ginning as the process most responsible for cotton quality.

(2) Regarding maturity, one of the problems for spinners was the presence of immature pockets of fibre in a bale.

(3) A major factor with lower fibre quality was aggressive ginning (use of excessive lint cleaners), with the number of comber noils (a very good indicator of short fibre content) increasing with the number of lint cleaners used.

(4) With roller ginned cotton, spinners prefer good lustre, which will become an important characteristic in future.

6.3.3 Fibre Requirement Ramifications

The key ramifications of the above comments on cotton fibre quality characteristics (Section 6.2) and their market importance (Sections 6.3.1 and 6.3.2), are:

(1) The cotton industry needs a marketing and pricing system for raw cotton which fully reflects user (both manufacturer and consumer) requirements and preferences for cotton quality characteristics.

(2) The precursor for enabling this, however, is to have international agreement on a raw cotton classification system, based on an agreed, uniformly calibrated objective measurement system for measuring cotton fibre characteristics.

(3) Given the above two points, the challenge then is for cotton breeders to (continue to) breed cotton varieties with characteristics demanded by the market, whilst maintaining properties favoured by growers (such as yield, in particular, as well as disease resistance).

6.4 Cotton Classification System

6.4.1 Traditional Subjective Measurement Classification

To date, cotton has been classified in the traditional manner based on describing cotton quality in terms of: grade, staple and micronaire reading. This is done in accordance with the official Cotton Standards of the USA.

Grade is based on visual appearance of: colour (white to grey), leaf and trash, and preparation (sample smoothness after ginning). `Staple' is based on staple length, which in turn is associated with fibre strength and fibre fineness. Staple is determined by sight and touch. Micronaire reading is a measure which provides an indication of fibre finesses and maturity, using airflow instruments.

Cotton classers are highly trained, well qualified and experienced but are limited by the physical constraints of manual, subjective assessment techniques, which cannot provide the quantity of precise information required by modern mills. Accurate lint grades do indicate the market value of cotton, but they do not necessarily reflect the true value to the spinner. Also, variations in individual fibre properties make every bale different.

In short, growers are being paid for what they produce under the traditional classification system, in accordance with what the system actually measures. Also, this Report is <u>not</u> contending that the traditional classification system is not well operated.

But, traditional classification has inherent constraints, which prevent price signals that <u>fully</u> reflect spinner requirements from moving up the marketing chain to the grower and the breeder.

The specific limitations of traditional manual classification system are:

(1) Length

Manual classing involves determining staple length by "pulling". Hand pulling is mandate for determining the upper 2.5% of fibre length in a given sample, and under optimum conditions is accurate to within 1/32 of an inch. However, manual fibre assessment cannot indicate length uniformity accurately.

(2) Colour

Visual colour assessment is affected by many variables. The eye registers colour as the variation in the amount of light absorbed and reflected from the observed surface. Colour perception changes as the quality (wavelength) and quantity (intensity) of the light source changes. These changes caused by variations in lighting do not correlate in any way to the true colour of an object.

(3) Trash

The assessment of the cleanliness of a sample is expressed as trash content. Trash is characterised as particles originating from bolls, burrs, hulls, weeds, leaves and dust, which are mixed within the lint matrix of a sample. Visual definition of trash content is difficult to achieve due to the limited depth of field and short attention span of the human eye. Research on the repeatability of visual assessment of particle contamination indicates that judgement drift accounts for errors typically as high as 12%.

(4) Fineness

As previously mentioned modern cotton conversion methods such as rotor spinning, place greater emphasis on fibre fineness than on staple length. Manual assessment of fineness is not possible. The fineness of cotton can only be determined with the aid of scientific instrumentation. Traditionally, fineness is expressed separately as micronaire. However, micronaire (see Section 6.4.2) is actually a composite measure of maturity and fineness. Both properties affect end product quality differently, and should be quantified separately.

In summary, the traditional classification system is no longer appropriate today because:

(1) First, the spinning technology used in earlier decades, could not clean cotton very well. Hence, the traditional classification system for upland cotton placed high priority on having good quality with respect to grade. However, spinning technology has developed constantly over the past few decades and modern spinning equipment can clean cotton quite well. This means that grade is not as important today as it was in the past.

Indeed, the frequent tendency to over gin or overclean cotton by using multiple lint cleaners, in pursuit of better grades, damages the fibre by creating neps and reducing fibre length. This leads to problems at the spinning mill.

(2) Second, traditional style cotton classing, particularly the assessment of grade and staple, is subjective and inherently prone to lack of precision. Modern, high speed spinning technology increasingly requires greater precision in measuring and classing cotton. This means objective measurement of fibre properties is required.

(3) Third, and perhaps most importantly from the grower's viewpoint, subjective measurement does not ensure growers are paid for what they produce in terms of spinnability, to the same extent that objective measurement can.

(4) Fourth, because micronaire provides an indication of (not a measurement of) fibre fineness and maturity, these two attributes are compounded, with the result that mature but fine fibre can be downgraded in price because it has the same micronaire reading as, and is assumed to be, an immature but less fine fibre. Thus, micronaire is not a reliable indicator of maturity, nor fineness.

6.4.2 The Micronaire Issue

The original micronaire airflow method for "measuring" maturity was developed in the late 1940's [See reference 25]. It was then thought to be a measure of gravimetric fibre fineness or linear density (mass per unit length). It is still expressed in linear density terms, and hence, the finer the fibre the lower the micronaire reading (at a given level of maturity). However, it has since been shown that micronaire actually measures surface fineness (surface area per unit of mass), which is a combination of fineness and maturity [See reference 32].

Maturity is the best predictor of dye update. Immaturity is associated with dyeing problems. Because of the partial relationships between micronaire and maturity, low micronaire values have traditionally been severely discounted as a hedge against dyeing problems occurring.

This gives rise to the problem that a mature, but fine fibre may have about the same cross-sectional area (and thus the same linear density), or alternatively, the same surface area per unit mass, and thus the same micronaire reading, as an immature, but coarse fibre [See reference 32]. Without an independent measure of maturity, the mature, fine fibre will be confused with immature, coarser fibres, and incorrectly discounted for immaturity, rather than given a premium for fineness and maturity.

The ramifications of this for growers is that, with advances in spinning technology, in particular the use of rotor spinning which prefers finer cottons, spinners have been able to gain price discounts on what should be premium cottons [See reference 25]. Indeed, spinners have said on various occasions that they would pay more for fine, but mature cotton, provided the marketing and classification system enables this.

6.4.3 Objective Measurement Classification

Of fundamental importance to cotton classification is that, in future, cotton will be bought and sold increasingly on the basis of its spinning qualities - its `spinnability'. Indeed, the era of spinnability oriented cotton marketing has now commenced. Clearly, greater precision in measuring spinning qualities is needed and it can only be provided by objective measurement.

The physical characteristics of cotton lint largely determine the most suitable processing and manufacturing route, the resultant yarn and fabric quality, and the most suitable use for the end product. This is discussed in Section 6.3.1. above. In addition, cotton lint characteristics can vary from bale to bale, due to: inherited varietal genetic traits; on-farm conditions and practices; and ginning treatment.

The above two considerations means that it is essential for spinners to have accurate information on all the important cotton quality characteristics, for every bale they purchase. As well as needing this information, the spinner also needs to understand precisely how the properties of the lint interact with spinning conditions to determine spinning performance and cost, and yarn, fabric and end product quality [See reference 17]. This necessitates quantitative relationships between lint properties, on the one hand, and spinning and manufacturing performance, and yarn and fabric quality, on the other hand.

Moreover, if breeders and growers, as well as ginners, are to provide the spinning market with the desired cotton quality (which, of course, varies from mill to mill), the true lint quality characteristics must be quantified, by accurate measurement, and the pricing system must reflect these spinnability requirements.

This can only be achieved by objective measurement of cotton. It is this need that high volume instrument (HVI) testing of cotton aims to satisfy.

6.5 Cotton Objective Measurement Technology

International research on the importance of lint quality characteristics suggests that, ideally, the values for the following properties need to be known to completely characterise cotton lint and objectively [See reference 17]:

(A) Very Important

(1) Length and length distribution

(2) Strength

(3) Non-lint Content
- Trash
- Dust
- Foreign matter

(4) Fineness

(5) Maturity and its distribution

(B) Important

(6) Colour

(7) Dyeability

(8) Neps (size and distribution)

(9) Elongation

(10) Stickiness (mainly honeydew)

(C) Less Important

(11) Friction

(12) Elasticity, Modulus, Work-to-Break

(13) Bulk or Crimp

Worldwide research is being aimed at developing systems for measuring these properties accurately, rapidly and economically. Two properties in particular which HVI cannot yet measure satisfactory are colour and trash, both of which are components of the subjective, manual, grade measure. However, it is anticipated that, in the US, the classer's grade will be replaced by colour and trash measurement with the 1993/94 crop [See reference 17] [See reference 24].

Also, although there are a number of techniques available for assessing maturity, there is still no single method available for measuring or indicating maturity both accurately and with sufficient speed to enable its incorporation into HVI systems [See reference 25]. However, this is being researched, including at the Textile and Fibre Research Institute in Victoria, and it is only a matter of time before a breakthrough will be achieved.

Thus, the HVI systems of today, although a major step in the right direction of objective measurement, do not yet represent the final answer [See reference 17]. Much research and development is still required before cotton lint can be completely and accurately measured objectively. Nevertheless, there is no doubt that HVI testing of cotton is the best system currently available, and is superior to traditional, subjective, largely manual classing of cotton for obtaining acceptable, accurate descriptions of cotton lint with respect to manufacturing and end product quality.

Some applications of HVI are [See reference 17]:

(1) Classing and marketing

(2) Optimum cotton selection for specific end uses

(3) Pricing cotton in terms of its true textile value and quality

(4) Cotton growing and breeding

(5) Improving communication between breeders, growers, ginners and manufacturers

(6) Ginning trials

(7) Accurate prediction of processing performance and product quality

(8) Computer controlled and aided fibre processing and yarn manufacturing

HVI testing is being increasingly adopted in Australia, which currently has 10 HVI lines. However, most processors who have the machinery, test with it, but do not yet tend to sell cotton using HVI data.

Notwithstanding the current situation in Australia, using HVI became a condition in the United States, commencing in 1991, for participation in the US Loan Program. Under the new arrangements, HVI data must accompany a bale of cotton if that bale is to be eligible for a USDA price support loan. Because of this, virtually all the US crop will, from now on, be sold on an HVI basis with virtually every bale being HVI tested.

Under these new USDA arrangements [See reference 24] the minimum acceptable strength is 18 g/tex - anything weaker is simply rejected. Premiums and discounts are applied for each g/tex increment above or below 24 to 25 g/tex. The premium range for micronaire values, which was previously 3.5 to 4.9, is now 3.7 to 4.2. For the 1993 crop, classers' grades will be determined as: (a) colour components via colorimeter; and (b) trash or leaf by video image. This move obviously impacts on the traditional classers' role.

There are clear ramifications in this US move for Australia. Around one quarter of world cotton output is currently traded internationally. The US accounts for some 30% of world trade at present, and this is projected to rise to 40% over the next few years, entrenching the position of the US as the dominant exporter. Australia exports around 90% of its raw cotton output and now accounts for around 7% of world trade. To compete successfully on the world market in future, a market in which the buyers (spinners) seek objective measurement and HVI, and in which the dominant seller is using HVI, then it is obvious that Australia will have to market its crop using HVI as well.

6.6 Cotton Objective Measurement Ramifications

In summary, maximum benefits for the cotton industry and its various component sectors (breeders, growers, spinners, ginners, merchants, manufacturers and distributors) will only occur if each sector pays due regard to 'giving the market what it wants'. To enable this, an agreed system of classification, based on the important value determining characteristics, is essential. Underlying the classification system, is accurate, fast and economic objective measurement of cotton. This system then forms the basis of a pricing mechanism, with appropriate premiums and discounts for all important characteristics. Such a pricing mechanism and classification system is essential to:

- Ensure breeders, growers and ginners produce cotton with qualities 'which the market wants'
- Reduce inconsistencies and minimise uncertainties in classing
- Ensure growers are paid in accordance with the quality of the cotton they produce.

In particular, a cotton marketing system based on objective measurement will allow price signals which fully reflect spinner requirements to move back along the marketing chain to the grower and the breeder. The bottom line for growers will be a higher price (than otherwise) under a cotton marketing system based on HVI objective measurement. Local and overseas spinners are on record in confirming this [See reference 22].

In previous decades in the important textile nations of Europe, cotton sales between spinner and weaver relied on subjective measurement, with merchants playing a dominant role. With the advent of objective measurement after World War Two, weavers could then buy direct from spinners and, as a result, the merchant class became extinct.

Similarly, with the growing adoption of objective measurement for sales between grower and spinner, the role for the merchant as a middleman between the farmer and the buyer will become increasingly doubtful. Already, some growers sell direct to the spinner. However, just who will organise the risk management marketing services for growers will have to be determined, and there may be an ongoing, albeit different, role for the merchant.

Also, as mentioned above (see Section 6.5), the move to HVI based objective measurement for marketing cotton will inevitably mean a changed role for classers, with the traditional, subjective, manual classification role no longer required. Skilled operation of HVI lines will become essential.

As outlined above (see Section 6.5), the move to HVI based objective measurement for marketing cotton will inevitably mean a changed role for classers, with the traditional, subjective, manual classification role no longer required. Skilled operation of HVI lines will become essential.

6.7 Cotton Objective Measurement Implementation

As noted earlier (see Section 6.5), the HVI lines of today do not yet represent the final answer, with further R&D work required, which is ongoing, before cotton can be completely and accurately measured objectively. In the interim, there will still be a need for some manual classification inputs, such as for colour and trash.

However, it is important to note two points regarding objective measurement implementation both of which indicate HVI has already arrived for some sectors of the total marketing chain:

(1) Modern spinning machinery requires HVI computer data to operate them. Thus, HVI is already here in regard to the manufacturing sector

(2) Merchants (in Australia) are already using HVI data as a marketing tool for selling cotton to some of their customers. Clearly, they can see the benefits of HVI. What is needed is to complete the picture by using HVI objective measurement to buy cotton from growers, and to pay growers on the basis of HVI data.

Two key requirements now need to be met to enable the successful implementation and operation of HVI based marketing of the total Australian crop, from grower to spinner:

(1) Universal standards
For HVI based cotton marketing to be workable and acceptable on a worldwide basis, and to achieve commercial reality and provide unambiguous and accurate HVI results, universally (internationally) accepted standards are needed for: calibration procedures; cottons; levels; and test procedures. Work is proceeding on this objective.

For example, the ITMF, in 1980, established the "International Committee on Cotton Testing Methods" to select and recommend universal cotton testing methods with a view to: their international standardisation; harmonise cotton test results by means of round test (trials) conducted on a worldwide basis; recommend further research work into cotton testing; and generate discussion on the relationships of cotton testing to processing [See reference 22]. This Committee now has some 60 members from 19 countries. Australia should be represented on this Committee, and steps are now being taken in this regard.

(2) Single Testing Entity
A single entity is needed to take responsibility for the HVI testing of each bale, and for independently monitoring the HVI line equipment.

In the United States, the USDA is the central authority responsible for HVI testing. By contrast, the Australian cotton industry seems to be paranoid about the notion of any `central authority'. However, a precedent has already been set in the form of the CRDC, which is, in effect, a central authority for managing cotton research.

Clearly, a single entity, which is independent and has the necessary powers, is needed in Australia for successful HVI implementation for marketing the whole crop. This entity could be a separate industry controlled body, or an incorporated company, or a statutory government business enterprise organisation.

The actual testing would either be done by the single entity, or by individual companies under the jurisdiction of the single entity.

A recommended system for full implementation of HVI into Australia's cotton classification and marketing system and its ongoing operation is:

(1) Establish a single entity to take responsibility for objective HVI measurement.

(2) Ultimately, have the HVI line as the last step at all gins.

(3) Obtain the appropriate testing machinery, and update as necessary.

(4) Test every bale.

(5) Bar code every bale with HVI data.

(6) Set market prices, with appropriate premiums and discounts in accordance with HVI objectivity measured properties - especially the spinnability characteristics.

(7) To continue researching the subject here, and monitoring international research progress.

6.8 Financial Implications

6.8.1 Current Objective Testing

A number of organisations have already moved to introduce objective testing procedures to supplement traditional grading. The current position is understood to be a total of 12 HVI lines:

A: Spidlab	No. of Units
Namoi Co-op	4
Auscott	1
(Auscott's parent Co. in the USA uses Motion Control equipment)	
CTC	1
Queensland Cotton	2
Colly Farms	1
CSIRO	1
(used in research)	
Rocklea Spinning	1
B. Motion Control	
Dunavant	1
(Dunavant parent in the USA uses Motion Control equipment)	
TOTAL	**12**

Older models do not carry out the same range of tests as the new equipment, which is also quicker and labour-saving. Some companies only test a proportion of bales, eg. 1 in 10.

New models include additional testing for maturity and "honeydew" and these will be available in Australia in 1993. The USDA has ordered 40 of these units for its testing program and they are being installed at present.

Ginners use the information provided as important feedback to the gin operators. However the results are useful in marketing to customers who are becoming increasingly sophisticated in respect of HVI testing.

Current testing - Using an automatic sample provide:

- Fibre Length
- Uniformity
- Strength
- Micronaire
- Trash content

Spinlab advise the price of the new HVI line with additional testing and with associated computer equipment at about A$220,000.

6.8.2 100% HVI Testing

The capacity of the new HVI models is such that to handle a two million bale crop Australian testing would involve 18 lines operating on an 8 hour shift, 5 days/week for a four month season with one operator per line.

US processors generally test at the gin and also use a cotton classer as a final quality check. It is assumed classers will still be employed.

The establishment of 100% HVI testing would involve:

- HVI equipment
- Air conditioned / controlled atmosphere building - these are already in place where HVI testing is done.
- Sample storage area
- Laboratory assistant

The cost of new HVI equipment could be reduced by operating testing on a three shift basis. New equipment could be introduced progressively at gins. However, this may not be feasible as it would depend on pickers and ginners keeping up the volume.

Testing could be arranged:
a: By each gin
b: By each company
c: By region
d: By one independent testing organisation

Processors prefer to run their own testing lines as it provides sensitive quality details which are important to the marketing effort and it gives feedback to the gin operator. An independent unit would provide economies of scale and give a central reference point for overseas companies but the processors prefer to manage their own testing.

The smaller companies would therefore not be able to carry out testing as economically as the major processors as their throughput would be less.

6.8.3 Cost Estimate of Added HVI Lines

A basic idea of the cost involved in 100% HVI testing is as follows: Eight new HVI lines installed and operated on a five day, three shift operation.

Cost of a new model line with data collection equipment $A220,000 in 1992.

Processing Rate: 1,000 bales/day
(more if shiftwork is possible)
Labour: 1 person per line

This would allow a two million bale crop to be tested to the latest technology at a cost of less than $2.00/bale, depending on throughput and shiftwork.

The Introduction of HVI testing of 100% of the crop is less than 1% of the price of a bale and this does not take account of the 10 HVI lines now in operation.

6.8.4 Benefits of 100% HVI Testing

The benefits to flow from this move are:

- Price premiums for specific testing qualities
- Better quality control at ginning
- More Customer satisfaction leading to improved market share
- Retention of existing markets which are using HVI testing for buyers
- Competitiveness with the US
- An advantage over competitors who do not offer this

6.9 Wool Classification and Measuring

There are many laudable aspects of the way in which Australian raw cotton is marketed, in the broadest sense, and such marketing has some lessons for marketing other fibre, such as wool. Conversely, the cotton industry would be well advised to look beyond its own arena, from time to time, as it can also learn something from wool testing (in particular), handling and marketing and we are not talking about orderly marketing arrangements. Keeping an eye on other sections of Australian primary industry and especially on other sections of Australian primary industry and especially on other fibre industries such as wool industries such as wool, will help keep cotton in the forefront [See reference 34].

Over the past two to three decades, objective measurement has grown to become a prime feature of marketing the Australian wool clip. In 1958/59, only around 1% of total wool production was presale tested; today, the figure is 99%.

Virtually all wool testing in Australia is carried out by the Australian Wool Testing Authority Ltd (AWTA). This organisation's predecessor was established in 1957, and was a statutory body attached to the Australian Wool Corporation until 1981. In 1982, the AWTA was privatised and set up as a company with a limited guarantee, and example from having to pay income tax. It has no shareholders and pays no dividends. Its seven member guarantors (seven "owners"), in effect represent its major client groups, as follows:

- Wool Council of Australia (grower)
- Australian Wool Corporation
- The National Council of Wool Selling Brokers of Australia
- Australian Council of Wool Exporters
- Federal Council of Private Treaty Wool Merchants
- Wool Scourers and Carbonisers Association of Australia
- Wool Textile Manufacturers of Australia

All (99%) Australian wool is sold and bought on objectively measured specifications. AWTA Ltd business is to obtain wool samples, test the samples to obtain the necessary measurements, and provide results to clients in the form of a Test Certificate which they can use when they buy and sell wool. AWTA Ltd is an independent, private enterprise organisation, which operates on a commercially self-supporting basis, and charges for its services. In FY 1990/91, its total operating income was $39.5 million and its net profit was $6.8 million [See reference 7].

In performing its testing functions, AWTA Ltd's primary objective is to provide an accurate, independent and efficient testing service to Australia's wool and textile industries. It conducts tests on greasy, scoured and carbonised wools, in accordance with sampling and testing procedures laid down by international (International Wool Textile Organisation) and Australian (Standards Association of Australia) standards.

AWTA Ltd has three testing laboratories of similar size for its greasy and scoured / carbonised wool testing. They are in Melbourne, Sydney and Fremantle. It also has 30 sampling offices in wool handling centres around Australia and a number of other regional sampling centres. Its head office and Textile Testing Division are in Melbourne.

AWTA Ltd's activities cover: raw wool testing (greasy and scoured / carbonised wool); textile testing; analytical testing (eg chemical content); mohair and cashmere testing; and research and development. Raw wool testing activities include presale tests for the grower (around 95% of AWTA Ltd's testing activities) and postsale tests for the buyer, and cover particular tests, such as:

(1) Presale Certificate Core Testing

- A sample (minimum 1kg) is core tested for the three wool fibre properties that are most important in determining wool's manufacturing quality: yield (clean wool proportion of original greasy wool); vegetable matter content; and mean fibre diametre.
- All wool sold by sample (around 99% of the clip) is core tested. Without the core test a substantial price discount is applied, hence the 99% figure.
- The acceptance of AWTA Ltd core testing, and the success of this test, is because the core test result's predict reasonably closely the sample's and the basis manufacturing performance.

(2) Staple Length and Strength Testing

- Sale by additional measurement (or sale by staple length and strength measurement) was introduced in January 1985, to complement the existing core test measurement.
- Since then, staple length and strength testing has gained increasing acceptance, and covered 51% of all combing wool offered for auction in 1990/91.
- The two measurements are for: staple length; and staple strength (and break position).

(3) Fleece Measurement Testing

- A service for wool growers and sheep breeders.

(4) Scoured / Carbonised Wool Testing

(5) Post Sale Testing

- Covers: yield; and mean fibre diametre measurements.

The positive features of the structure of AWTA Ltd are: its independence, all seven industry sectors are represented on its Board; and its limited guarantee company structure. Objective wool measurement has already gained wide industry acceptance, following initial opposition from some quarters, and 99% of the Australian clip is now presale core tested. The benefits of objective wool measurement accrue to: woolgrowers (breeding programs, clip preparation, handling and transport, marketing); wool exporters (delivery assembly marketing); and wool processors (reduced lot variability, greater accuracy in predicting conversion costs, greatly reduced invoicing claims).

The relevance to cotton of Australia's clearly successful wool testing system includes:

(1) All (99%) wool is now presale objectively tested, and the test results are used to sell and buy the wool.

(2) Testing is conducted in accordance with national and international standards.

(3) A single entity (AWTA Ltd) is responsible for, and carries out, wool testing (AWTA Ltd has almost 100% of the testing market).

(4) AWTA Ltd features are:

- It is a private company, which charges a fee for service, makes a profit, and receives no government funds.
- It is not covered by any specific legislation (other than normal commercial legislation).
- It is independent.
- Its Board comprises representatives from all seven relevant industry bodies.

7. AUSTRALIAN COTTON ASSESSMENT

7.1 Introduction

This relatively short Section serves as a bridge to link our discussion in earlier Sections on the cotton market (Section 4), the cotton marketing system (Section 5), and cotton classification and measuring technology (Section 6), with the formulation of marketing strategies (Section 8) and a recommended action plan (Section 9). The rationale for this is simply, "determine what is required, assess what we have, and then plan what to do".

Our basic approach with this assignment and its Report has been to start from the fundamental tenet for commercial success, and to place our assessment and recommendations in this context:

- Give the market what it wants. That is, supply the market for Australian raw cotton with the type of cotton that it wants in terms of fibre characteristics, in accordance with the classification system and measuring technology required by spinners, now and in the future.

As stated earlier (see Section 6.1), growers will produce the cotton which maximises their gross margin at the farm gate. But the best way to maximise this is to supply the market with the product it wants.

7.2 Australian Cotton Varieties

Our Report and underlying assessment have tended to focus on fibre characteristics per se, rather than current varieties grown or being trialled in Australia. Nevertheless, we have provided some comment on varieties, as follows.

Cotton is a difficult crop to grow, requiring relatively high level inputs of management and technology, to minimise insect and disease problems, and to maximise yield and gin turnout. In addition, market requirements in terms of fibre characteristics are very exacting (see Section 6). Thus, it is clearly vital for the best possible variety (for each regional or local environment) to be grown. Moreover, the pursuit of this objective of growing only the most suitable variety, is an ongoing, dynamic process.

This, in turn, clearly underlies the fundamental importance to Australia's cotton industry of breeding and trialling and distributing cottonseed. These activities in Australia have achieved a high level of success and have provided a base from which the Australian cotton industry has successfully expanded for the past two decades. Moreover, this work, particularly that of CSIRO (for breeding, including genetic engineering) and CSD (for importing overseas varieties, trialling, and distributing seed) is ongoing.

The varietal breakdown of cotton grown recently in Australia is indicated by CSD seed sales (see Table 7.1). This illustrates the expanded use of Siokra and Sicala in recent years, at the expense of DP 90.

CSD's commercial variety trials for the 1991/92 season are summarised in Table 7.2. This demonstrates the success achieved in producing varieties with relatively strong, fine and long fibre, that also yield well. The breeding and trialling work is continuing, with constant improvements occurring.

Table 7.1

CSD SALES OF COTTONSEED: 1984 TO 1989

Year	Variety					
	Siokra	Sicala	DP90	DP61	Sicot	Total
1) Market Share (%)						
1984				89	7	96
1985	14		86			100
1986	39		61			100
1987	62	10	28			100
1988	45	27	28			100
1989	47	20	33			100
2) Volume (tonnes)						
1984						3,239
1985	486		2,987	2,883	227	3,473
1986	904		1,414			2,318
1987	2,587	417	1,168			4,172
1988	1,522	913	947			3,382
1989	2,265	964	1,590			4,819*

* This record sales figure was due mainly to a 20% average replant.

Source: Derived from: Cotton Seed Distributors Ltd, Twenty Fourth Annual Report, Wee Waa, 1989.

Table 7.2

CSD COMMERCIAL VARIETY TRIAL RESULTS: 1991/92 SEASON

Variety Commercial Name	Mean Fibre Characteristic			Yield
	Strength (g/tex)	Micronaire	Length (inches)	
Sicala 33	28.1	4.0	1.20	High
Sicala V-1	29.1	4.1	1.16	Good
Siokra 1-4	26.6	3.9	1.18	Highest
Siokra L22	27.8	3.8	1.20	High
Siokra S324	25.9	4.1	1.14	High
CS - 6S	28.5	4.2	1.14	Good
CS - 189	26.8	4.0	1.16	High

Source: Adapted from: CSD, 1990-91 Variety Trial Results, Wee Waa, 1992.

As a final comment, we believe from a marketing standpoint, it is difficult for the industry to have to keep on launching improved varieties and types into the marketplace under new names, or worse still under the tag of a group of numbers or letters. Instead, improvements to a particular variety should retain the varietal name. The new version should be marketed under the same name, as an improved version of the same variety. This serves to build on acceptance already achieved in the market place by a successful variety name.

This suggestion would be in keeping with the trend already occurring overseas whereby cotton is marketed under its varietal name, with no more change as improvements are launched. This is the case, for example, with US `Pima', and Indian `Suvin' (see brochures attached). We can report favourable responses by spinners to this trend.

7.3 Australian Cotton Industry Organisation

This Section takes a brief look, from the perspective of this marketing assignment and its recommended action plan, at the main organisations involved in the cotton industry and what changes could be made to keep the Australian cotton industry at the forefront in future.

Our comments and views in this Section 7.3 have been provided because, in formulating an action plan to give effect to our recommendations, it has been necessary to evaluate the roles of existing cotton industry organisations and whether there is any need for change.

The cotton industry's current organisations and their roles are outlined in Table 7.3. This industry organisation structure and role has evolved with the industry and, overall, has served it well.

However, we believe there are some changes needed, which would help ensure the industry continues to achieve in future, as it expands further and matures, the level of success it has achieved to date as a developing industry. We put forward these suggested changes for consideration by industry.

Our proposed changes, which are limited and specific, are summarised in Table 7.4. They are:

(1) Two New Industry Functions

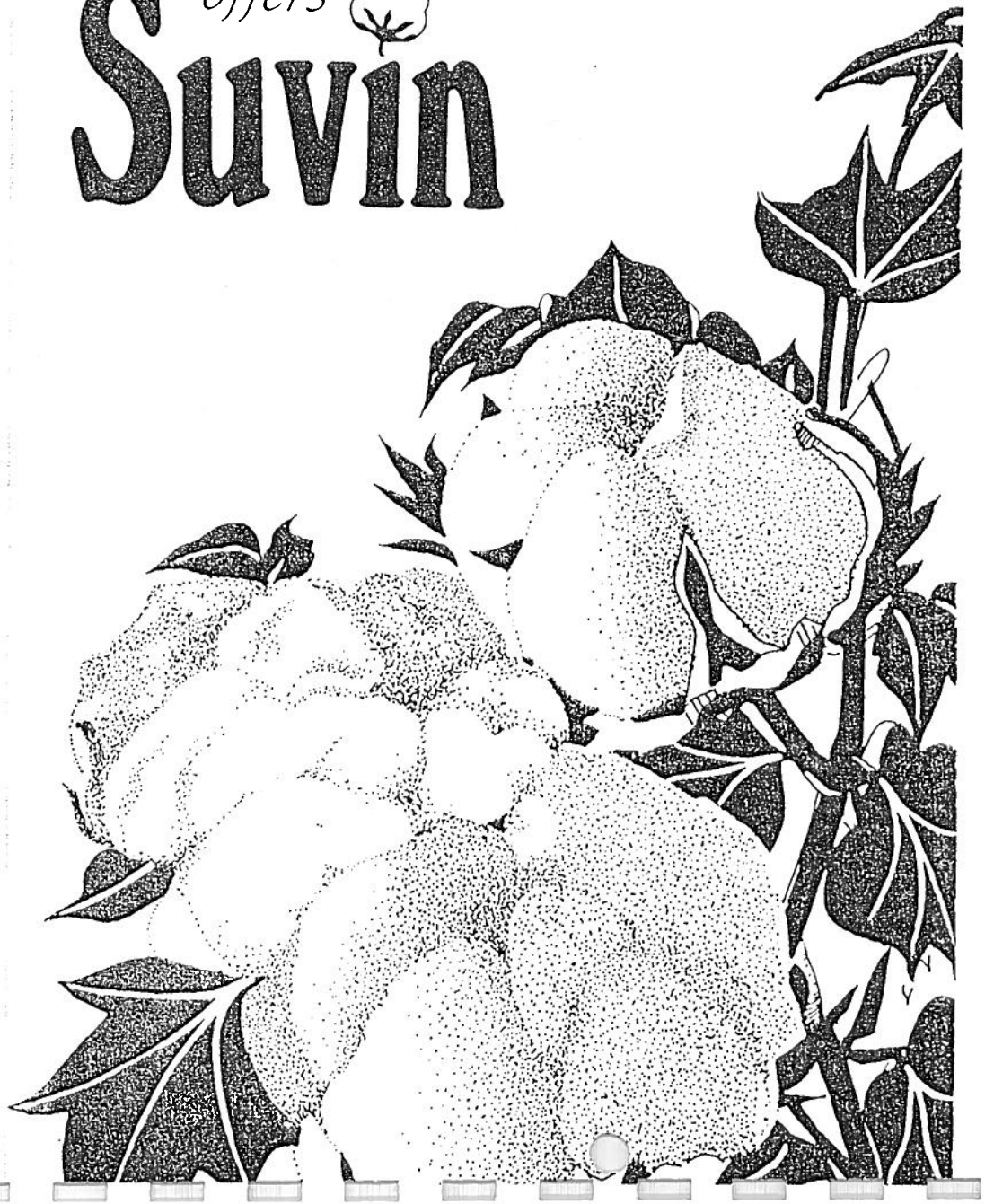
(i) Objective Measurement

- This is discussed in detail in Section 6.
- We consider the Australian industry should move to adopt fully, as soon as possible, HVI objective measurement as a major tool for marketing the Australian cotton crop, including transactions between grower and marketer/merchant.
- HVI testing should also improve ginning quality
- We further consider single industry entity needs to be given the responsibility for conducting HVI measurements, or at least to oversee the HVI practices and procedures being used by the industry.

(ii) Industry and Market Information and Analysis

- This function, at an industry wide (or generic) level is not really performed at all at present, and certainly not to the extent that it is in Australia's other four major rural industries (wool, meat, wheat and dairy).

premier offers Suvin



SPECIAL FEATURES

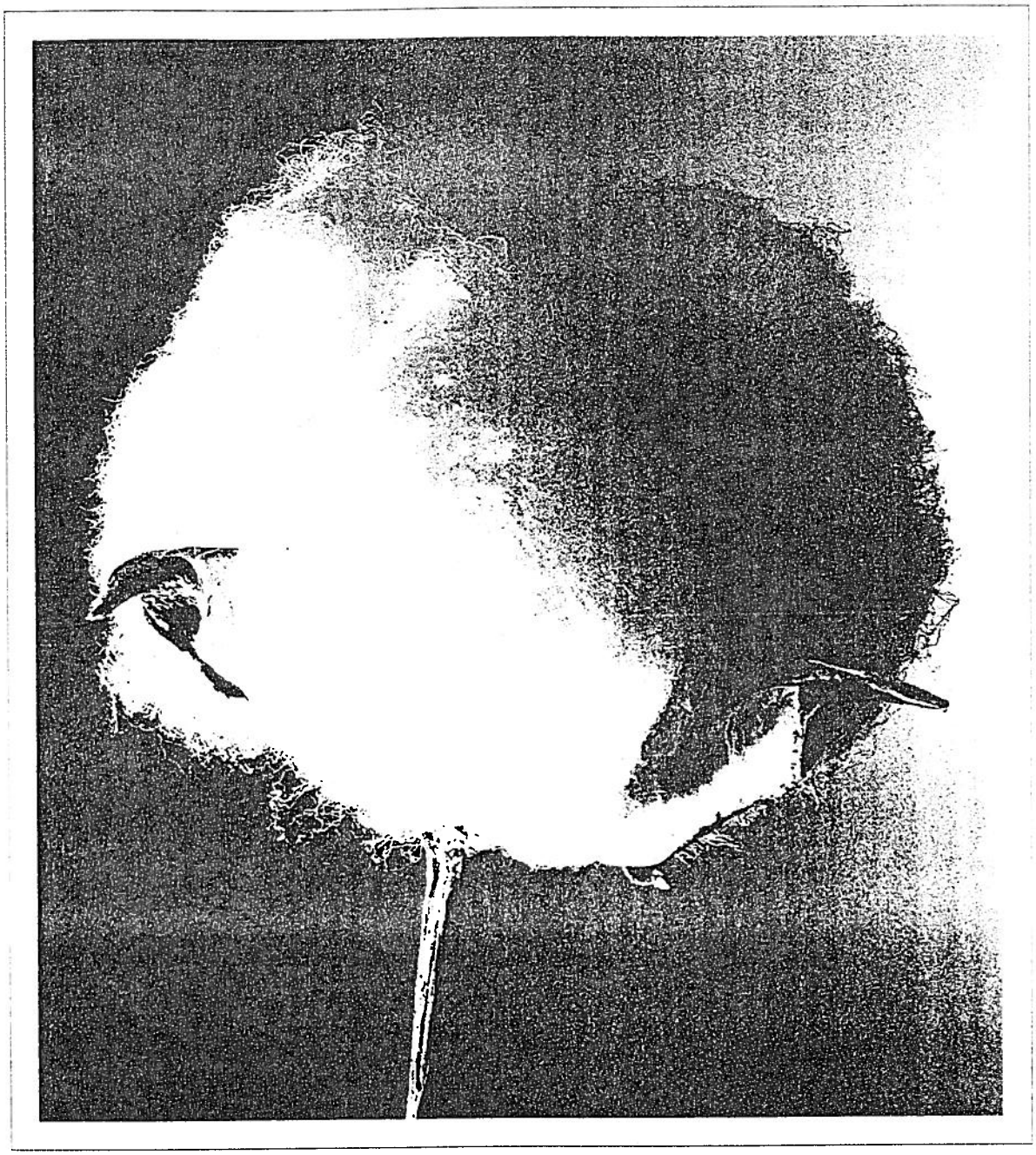
The soft, silky characteristic of this variety imparts superior aesthetic appeal in super fine cotton fabrics for outer wear. The inherent lustre and silkiness of this superior fibre also lends itself very well to good dye absorption, thereby producing a fabric which has a special characteristic appearance and feel.

SPECIFICATIONS

SUVIN in comparison with other extra long staple varieties of Indian origin.

Fibre Parameters	Suvin	DCH	Shankar 4
Staple Length (MM)	39	36	29
Micronaire (Mic gms/inch)	3.1	3.0	4.0
Strength (G Tex)	32	22	21

SUVIN FABRIC SAMPLE



Supima® Extra-Long Staple cotton from the Southwest United States has become the cotton of choice for fine spinning mills throughout the world. The Supima trademark is your guarantee of superior quality textile products.

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(2) Industry Organisation Changes

(i) ACF

. We consider the cotton industry would benefit from having a single industry body to take final responsibility for industry policy making in respect of marketing issues.

. Rather than create a new organisation, the charter of the ACF could be expanded to take on this role.
  - This would include consideration given to including merchants in its membership

. The good work conducted to date by the ACF needs to be expanded to include:
  - Administration of `cotton sale standards'
  - The proposed `industry and market information and analysis' function

. Also, if RCMAC were to cease, the important role it has performed to date in providing `industry government information exchange', could be taken on by ACF, with a DPIE government representative attending ACF committee meetings as required.

. In addition as stated above, we consider there needs to be a single entity to take responsibility for conducting HVI objective measurements, or, at least, to be responsible for overseeing HVI testing by others (such as individual ginners). One option for carrying out this role is for a new organisation or company to be established (such as an `Australian Cotton Testers Limited'). But our preferred option is to utilise the existing structure of ACF, and expand and revamp it to include responsibility for co-ordination of objective measurement.

(ii) Individual Cotton Grower Associations

. There are a number of regional or `valley' oriented cotton grower association, for individual cotton growers.

. In time, these may combine to form a council or federation, to give the individual growers a united voice. We understand this move has been (and still is being) discussed.

. If this were to happen, overlap with ACF functions would need to be avoided.

(iii) ACIRA

. Cotton R&D includes an off-farm component, which needs to be expanded covering areas, such as marketing, processing (ginning) and Textiles (fibre).

. It would be more appropriate, therefore, if ACGRA were to change its name to `Australian Cotton Industry Research Association' (ACIRA).

(iv) ACAC (RCMAC)

. RCMAC was established in 1964

. Functions carried out by RCMAC in the past, but which it no longer conducts are:
  - Administration of the former raw cotton bounty
  - Administration of the domestic quota scheme for raw cotton sales by ginners to local spinners. This scheme ceased in 1990.
  - Coordination of raw cotton prices for sales to local spinners, and of export supplies. This ceased in 1986.
  - Organisation of a biennial industry conference. The final one to be organised by RCMAC was held in 1990.

The main continuing functions of RCMAC are:

- Industry-Government information exchange. This is an important function which includes information and discussion on relevant government policy and international trade policy (ie a policy forum role).
- Advice to the Federal Minister on matters affecting cotton.
- Maintenance of cotton sale standards.

As RCMAC no longer performs a marketing role (administration of government intervention in raw cotton marketing) as it did in the past, and some of its other previous functions have ceased, it is time to consider the Future role for RCMAC.

One option, which we prefer, is for RCMAC to cease, but its current important `Industry-Government information exchange' function, and the cotton sale standards function, to be continued by an expanded ACF, as mentioned above. Our preference for this cessation is not in any way a reflection on the good operations of RCMAC, but rather a philosophical judgement as to who should be responsible for certain activities - industry or government.

Alternatively, if RCMAC continues, it should change its name to something like:

- Australian Cotton Advisory Committee (ACAC)

This would reflect the fact that RCMAC no longer performs the marketing functions which it did previously.

ACAC could then continue to carry out the `industry government information exchange' function.

However, we believe a revamped ACAC should no longer carry out the `cotton sale standards' function, which would be more suited to an expanded ACF (as above).

Table 7.3
COTTON INDUSTRY MAJOR ORGANISATIONS AND ROLES: CURRENT

Industry Organisation	Industry Function							
	Cotton Prom-otion	Industry Public Relations	Indust. Represe ntaion	R&D Liaison & Priorities	R&D Management Certification	Cotton seed Trials Exchange & Distribution	Industry - Govt Information	Cotton Sale Standards
(1) ACF	X	X	X					
(2) Individual Cotton Grower Associations			X					
(3) ACGRA				X				
(4) CRDC					X			
(5) CSD						X		
(6) RCMAC							X	X
(7) Cotton Shippers Association			X					
(8) Australian Spinners Committee			X					

Table 7.4
COTTON INDUSTRY MAJOR ORGANISATIONS AND ROLES: PROPOSED

Industry Organisation	Industry Function									
	Cotton Prom-otion	Industry Public Relations	Indust. Represe ntation	R&D Liaison & Priorities	R&D Manage-ment	Cotton seed Trials Certif icationion & Distrib~	Indust - Govt Information Exchange	Cotton Sale	Objective Measurement Standards	Industry & Market Information & Analysis
(1) ACF	X	X	X				X	X	X	X
(2) Individual Cotton Grower Associations			X							
(3) ACIRA				X						
(4) CRDC					X					
(5) CSD						X				
(6) Cotton Shippers Association			X							
(7) Aust. Spinners Committee			X							
(8) [ACAC]							or [X]			

7.4 Australian Cotton Industry Comment

As we have said elsewhere in this Report, the Australian cotton industry has developed over the past two decades to become a major rural industry. There are many specific aspects of the industry which can be justifiably held up as models for success.

Notwithstanding this success story, there are attributes of the industry which are less than ideal and which warrant comment or constructive criticism, as follows:

(1) Need for a Local Spinning Industry
Our feedback indicates there is a fairly widespread view that the local spinning industry is not really needed by Australia's raw cotton producers, as we now export 90% or more of total production. That is, "the local market is nice to have, but we can sell all we can grow on the export market, and it would not matter to us if the domestic spinning industry (and all other local textile operations) ceased to exist."

We believe this is a very misguided view. The local spinning industry is important to our raw cotton production, because:

- It has provided an ongoing sizeable market for Australian raw cotton production, which has not diminished in size in absolute terms, although it has reduced in relative terms as total production has expanded. Today, at around 10% of the total market for Australia raw cotton, the local market is, in fact, the fourth largest single market, after Japan, Indonesia and Korea - why would the industry want to give that up?

- In addition, the local spinning industry has performed a valuable ongoing role in acting as a `laboratory' for testing our raw cotton quality. Valuable information and feedback, in English, has been readily available to ginners, growers and breeders.

(2) Need for Greater Market Orientation
Despite significant progress, we believe the cotton industry in general, is still too production-driven, and insufficiently oriented to the marketplace and providing the market with what it wants.

(3) Industry is too Insular
We believe the Australian cotton industry is, in general, too insular:

- Growers need to pay greater attention to the textile and garment sectors.

- The whole industry needs to examine developments in other fibre sectors on a more regular basis.

(4) Potential for Complacency
We consider much of the industry is in danger of becoming complacent and too ready to rest on past laurels. Indeed, there is even an attitude bordering on smugness in some quarters, which is undesirable and counterproductive.

(5) Research Funding
The cotton industry is now a major contributor to total farm gross value of production and to total agricultural export income (see Section 3.1.9.).

However, it is worth noting that Federal Government funding for R&D as a proportion of both industry value of production and industry product export income is lower for cotton than for each of the other major agricultural industries (wool, beef, wheat and dairy).

Also, the proportion of Government funds expended on cotton R&D which is allocated to marketing and other off-farm areas is very low.

7.5 Australian Cotton Appraisal Summary

7.5.1 Product Evaluation and Competition

Clearly, Australian raw cotton, overall, is well regarded by overseas and Australian spinners. To enhance its existing good reputation for being a quality product, it needs to be a little finer (whilst maintaining strength) and a little longer, and to have less short fibre content.

In terms of competition, Australian cotton will need to continue to compete for a viable share of the international trade in raw cotton, although there is no suggestion it will have trouble selling its current potential crop volume of from 1.8 to 2.0 million bales. However, there is no room for complacency as competition from other suppliers, such as the USA, will continue, as will the competition from alternative fibres, especially MMF.

The above comments are expanded on in the next Section (7.5.2).

7.5.2 SWOT Analysis

STRENGTHS

(1) Overall, Australian cotton has a high reputation in overseas and local markets as being a quality product.

(2) Australia's reputation as a supplier of stable cotton is growing in the Asian market surveyed.

(3) It is relatively strong and meets requirements on micronaire and length

(4) It is low in contaminants compared to many other suppliers.

(5) It does not have a significant honey dew problem. This is not the case with USA and African cotton where the problem is worsening. These supplies are working to solve the problem.

(6) A number of mills now need Australian Sicala cotton. They will not admit this, for commercial reasons, but, having adopted their plant to Australian type cotton it would be inconvenient to switch to some other type.

(7) It is well placed geographically to supply Asian markets, and shipping and distribution is timely and generally free of delays.

(8) Customers see the Australian price as advantageous at certain times of the year compared with Northern Hemisphere cotton as the timing of supply avoids carrying (holding) costs.

(9) Cotton use is expected to continue to grow worldwide.

(10) Australia's cotton industry is well served by its breeding and trialling activities.

(11) Australia's cotton industry has grown over the past 20 years to become a major industry and this has been achieved largely by the progressive drive of industry participants, with a minimum of government intervention (apart from research).

WEAKNESSES

(1) Australian cotton's poor quality in the three recent wet harvest years had an adverse impact on customers. This was alleviated somewhat by the good quality achieved in 1991.

(2) Australia cotton's nep content compares somewhat poorly with other cotton, particularly with hand picked cotton, such as African cotton.

(3) SJV varieties are perceived to be better by some customers, due to stronger fibre and better nep than Australian cotton.

(4) Packaging of cotton bales could be improved. Bales sometimes burst in shipment due to the type of bale tie used.

(5) Customers indicate they would like to buy Australian cotton year round, but this service is not available.

(6) The lack of HVI based objective measurement for buying cotton from Australian growers.

(7) The Australian cotton industry's organisational structure has been set up to cover all the main requirements, and, in general, this has been achieved. However, we consider one area that could be improved is to widen the charter of ACF to cover activities such as market information and analysis on an industry wide basis (see Section 7.3).

OPPORTUNITIES

(1) New Export Markets

There is a clear, ongoing trend for installing additional spinning capacity in countries with low labour costs. Major spinning countries such as Japan, South Korea and Taiwan are now also producing in Indonesia, Thailand, Sri Lanka and Vietnam.

Australia is well placed geographically and in its understanding of Japanese, Taiwanese and Korean requirements, to service these expanding and new markets. Also, new or expanded markets are likely in countries such as Vietnam.

(2) HVI

It is in Australia's interest to promote full HVI testing and marketing based on HVI objective measurement, as this will enable price premiums to growers to reward the positive features of Australian cotton.

Most customer nations, either by firm or by industry association intend to adopt HVI testing, if they do not have it already. Obviously this could also provide the basis for claims but should, on balance, ensure Australian cotton's competitiveness against competitors.

(3) New Product Use of Cotton

General use of more cotton products will improve demand for cotton. Domestic industries using cotton in existing products or developing new products will boost local demand. This includes:

Cotton Bale Covers: Although more expensive, overseas spinners are already requesting cotton bale covers, to facilitate disposal and reduce contamination.

Uniforms: For industrial and military use.

Fastfood: Moves are underway in the USA to convert clothing used in fast food chains to cotton, which is more comfortable for employees. Research indicates that polyester clothes are a significant reason for employees resigning.

Service Stations: Oil stains on clothes can be cleaned more easily from cotton and these uniforms would be more comfortable in cotton,

Hospitals: Nurses have also shown a preference for cotton as stains are more easily washed out. Throw away clothing used in the treatment of infectious and fatal diseases should be made of cotton. The benefit of using cotton is that it is biodegradable, waste whereas polyester is not.

Fire Fighting: A major promotion for cotton in the USA features Red Adair saying "I'll stop wearing cotton when Hell freezes over". Cotton is promoted for its coolness and its lower inflammability when treated, compared to MMF.

Hygiene: The cotton gusset in panty-hose was developed following concern about health problems caused by 100% MMF panty hose. Australian percentage use of cotton in underwear is one of the highest in the world. This trend could be developed further in overseas markets.

Sporting Clothes Cotton is well regarded in sporting goods and these are opportunities to raise its profile by outfitting key sporting and national teams, eg: Olympic games, Football premiers and national sides, etc.

Wall Coverings: Cotton's thermal and lower inflammability qualities can be developed in wall coverings.

Carpets: Whilst there is a faster wearing issue to address cotton floor coverings could be feasible as it has other excellent qualities. The annual production of synthetic carpet annually amounts to billions of square metres and this may well become an environmental issue given the non-biodegradable nature of the product.

(4) **Consumer Trends**
The Baby Boomer generation is more used to denim and cotton T-shirts than its predecessor age groups. There are opportunities to develop these preferences for a higher income group.

(5) **Cotton Mark**
This mark can play an important role in raising consumer awareness of cotton.

The ACF is developing this concept in the local market.

(6) **Australian Designs**
Some Australian designers have established international reputations for their fabric designs. Ken Done and Jim Pike have developed unique looks which can be developed in consumer markets overseas.

(7) **Year Round Supply**
With lower interest rates and thus lower carrying costs it may be feasible to enter into commercially viable arrangements to supply customers over periods of the year which are now not serviced from Australia at present.

(8) **Domestic Demand**
The current attempts by the Federal Government to promote value added export industries provides a timely opportunity for our textile and clothing industry to re-open the question of ongoing local manufacture of cotton fabric and the level of assistance that may be needed in the short to medium term.

THREATS

(1) Other cotton supplying countries could gain market share in overseas markets now supplied with Australian cotton. This could happen on the basis of lower price offered or better quality.

(2) Perceived Competitors for Australian Cotton are

- CIS (formally USSR): will be keen to supply the East Asian market, but is now affected by disruption to supply and is not very reliable. Also, it has not shown cotton supplied will be consistent with samples. However, in the longer term these problems may be minimised.

- China is not a net exporter of raw cotton. Since its big crop in 1984/85, China's textile production plus exports has exceeded production and year ending inventories have fallen over the following four years. In 1989/90 China imported 1.9 million bales and production grew in 1990/91 and 1991/92. If production continues to expand, China could again become a net exporter and would challenge east Asian markets.

- Africa: certain African cotton is preferred by spinners as it is hand picked and has better spinning quality, particularly nep.

3) **Other Fibres**

Synthetic fibres could regain market share lost to cotton in the 1980's. MMF success in the past was based on its convenience to the consumer.

Price factors are not as significant in the markets in developed countries, where quality is very important.

New technology microfibres will be a significant threat as it will be less than 1 denier and only Pima cotton will be able to match it for fineness.

Market research slows the housewife's priorities are still strongly biased to "easy care" products.

7.5.3 Conclusions

In summary, conclusions are as follows:

. It is important not to take our current advantages for granted

. End user preferences will continue to change

. Ongoing monitoring of customer markets is essential

. The cotton grown must accord with what the spinner and end consumer wants.

On the basis of our review of the world market it seems consumer demand trends, particularly in developed countries, have the following features:

- Finer quality products (Pima cotton and the new micro-fibres will be sought after)
- Blends which will meet customer requirements
- Comfort factors now weigh more with consumers
- Natural/bio-degradable products are preferred
- More interest is taken in what fibre is shown on the label by consumers
- Lifestyle and social issues are becoming relatively more significant to consumers.

Manufacturers will be increasingly concerned to reduce mill downtime. They are not wedded to cotton. They have switched before and could do so again.

Rapid, objective measurement is available and being developed to test key parameters. The adoption of HVI testing by the US cotton industry for all its cotton makes it imperative for Australia to make full use of this facility. It is noted about half of Australian raw cotton is now tested by HVI equipment, but it is not yet used significantly for grower sales.

8. MARKETING STRATEGIES FOR AUSTRALIAN RAW COTTON

8.1 Australian Market

The Australian textile industry has been virtually a captive market for Australian raw cotton in recent years, with negligible raw cotton imports occurring. Domestic sales have been relatively stable, although fluctuating a little from year to year, over the past 20 years or so. However, although domestic sales have been relatively steady in absolute terms, the local spinners share of the total market for Australian raw cotton has been declining as total production and total exports have increased (see Sections 3.1.4 and 3.1.6).

Australia's textile clothing and footwear (TCF) industries have historically been the recipients of very high levels of Government assistance. Various studies have been highly critical of the assistance and have called for its removal.

The TCF industries also recognise the need to rationalise to remain viable under reducing levels of assistance. An agreed program was put into place with the Federal Government. In March 1991 the Government unilaterally replaced the agreed program with a program which substantially accelerated the phased reduction in assistance.

This Report does not examine the basis of the Government's decision but notes that it has caused deep concern that a significant number of textile and clothing manufacturers will not be able to continue production, at least in Australia.

In this context it is pertinent that the Federal Government has called for more "value added" processing to be carried out in Australia. That is, it is urging Australian firms to invest in plant and people to process our raw agricultural and mineral commodities so that we add value to our exports and do not export them in a unprocessed state.

Exports of Australian agricultural commodities are largely in the unprocessed or early stage processed form. This applies to our wool, meat, grain and sugar.

Similarly, around 90% of our raw cotton is exported. Estimates suggest that Australia imports the equivalent of about 800,000 bales of cotton as fabric and clothes. Growth in textile and clothing manufacturing could replace these imports, it is argued by some. Unfortunately Australian industry has difficulty in competing with many clothing exporting countries, because of various constraints.

Vertical integration in Australia is impeded by:
- High plant construction costs
- High transport costs
- Environmental approval difficulties
- Small local market size.

Cotton does not have the institutional basis of other agricultural commodities and this is a distinct advantage.

In the Australian Manufacturing Councils' Report "The Global Challenge - Australian Manufacturing in the 1990's", the textile, clothing and footwear industry comes in for heavy criticism. These can be summarised as:

. Overwhelmingly domestic in orientation

- High wage structures which result in "virtually no prospect of retaining in the long term."
- Excessive protection well ahead of the average fur industry. In 1987/89 this was 168% for clothing and footwear and 74% for textiles. [See reference 30, p.49]

The report notes that some developed countries, with high wage cost structures have successfully restructured to areas suited to high mechanisation or to areas with short lead-time production suited to fashion changeability. Also, as real wage levels rise in the newly industrialised countries, like Korea and Taiwan, low wage businesses are ceasing or moving offshore.

The report concludes that the TCF industries will contract and restructure into the mature complex factor type of manufacturing.

In this Report we concur with the view that it is not appropriate to make excessively radical cuts to protection. However, gradual reduction of protection, based on restructuring and bearing in mind the current very severe recession is feasible and desirable.

For these reasons, it was not appropriate for the Federal Government to abruptly change the rules for TCF industries in its May 1991 Statement. Major firms had been working to a long term plan to achieve the agreed goals of the Government and the TCF industries. In discussions with executives in the industry, this decision, arrived at without prior consultation or warning, had a disastrous impact on investment and restructuring decision-making.

Unless this rate of change is altered quickly the domestic market for raw cotton could be seriously eroded. From a relatively stable demand for the past 10 years or more, it can now decline. Only those mature, manufacturing firms with high mechanisation levels will survive by the mid 1990's. Those firms not in this situation are now placed in a difficult position in trying to achieve restructuring with rapidly declining protection.

To the raw cotton industry the domestic market has represented (see Section 7.4):

- Its original market when cotton growing was established
- A secure market which has no competition from other suppliers
- A valuable local reference point on the requirements of cotton spinners and textile manufacturers.
- the only manufactures in the world using 100% Australian cotton

It is argued by some that the raw cotton industry no longer requires a large Australian textile industry for its viability. This may be so but the decline of local demand will represent a significant set-back for raw cotton marketing. The volatility of world markets and exchange rates will have an even greater impact on returns to cotton growers without the stable base of an Australian industry.

Australian spinners provide feedback to processors and farmers on the performance of cotton varieties in an easily understood form. In effect, it is a local testing laboratory.

In considering the relative importance of local sales it is common in most economic analysis, including this one, to compare domestic with export markets. This analysis shows a declining domestic sector, in relative terms. However, if the analysis showed importance of country markets, in the way exports are analysed, it would show:-

Country	Rank in Australian Sales
Japan	1
Indonesia	2
South Korea	3
Australia	4

In other words, the Australian market is of high priority and should not be lightly dismissed.

In discussions with textile manufacturers, there are a number of strategies being considered to retain levels of cotton processing in Australia. Companies which manufacture fabric and are involved in garment manufacture are considering the possibility of moving only the high labour input component off shore. Garment making is highly automated, to international levels, up to the cutting stage. These processes, and very simple assembled garments can be made in Australia competitively. Garments with more labour involved in the assembly can be expected at the cut stage. In this strategy a revision of tariffs is necessary to only tax the overseas value added component. It is noted that this is the approach taken by the USA and German Governments.

8.2 World Market Trends

Consumption

Cotton's share of the retail textile market (not including carpets) improved in the 1980's in the developed countries. In the USA, cottons market share of 36% in the 1970's, rose steadily over subsequent years as follows:

38% in 1981
39% in 1982
40% in 1983
41% in 1984
43% in 1985
44% in 1986
47% in 1987
49% in 1988
50% in 1989
54% in 1990

Cotton's share has improved in all product categories.

The US cotton growers established Cotton Incorporated in 1970 and its efforts are directed to:

- Research
- Product development
- Market promotion

Cotton Incorporated's goal is to enhance US consumer preference for cotton.

In heavyweight fabrics cotton held 93% of the market in denim, the single largest cotton using segment. In mid/lightweight apparel the trend is to lightweight clothing and major casual slack manufacturers now produce 100% cotton slacks.

Knit apparel is also trending to more cotton use particularly fleece apparel, traditionally 50/50 blends. Sheets and pillowcases are also reflecting consumer preference for cotton. Cotton's market share is increasing faster than the total market. New sheet ranges have been introduced made of 100% cotton.

Cotton dominates the towel market, with 95% share. Consumers are looking for thicker and larger towels. Blends are giving way to 100% cotton towels. All cotton blankets are now being introduced by manufacturers.

8.3 New Product Development Using Cotton

General use of more cotton products will improve demand for cotton. Domestic industries using cotton in existing products or developing new products will boost local demand (see Section 7.5.2).

8.4 Consumer Preferences

Synthetic fibres continue to be a major threat to cotton. Market research of consumer preferences indicate "easy care" is still a prime consideration in consumer products. Product development of non-iron cotton apparel is important in this regard (see Section 7.5.2).

However, cotton has made inroads into the synthetics share of the market by appealing to consumer preference for:-

- Bio-degradable products - cotton is seen as more environmentally friendly as the waste is degradable whereas synthetics are not
- Cotton is grown and is not a limited resource in the way fuel is perceived
- "Natural" materials - cotton appeals as a natural textile as opposed to an artificial or MMF textile
- Lightweight clothes
- Breathable clothes - cotton shirts, underwear and socks all reflect demand for "breathing" fabric

8.5 Marketing Strategies

The marketing of Australian cotton is carried out by a relatively small number of processors and independent merchants. There is no single body in the industry that has a marketing role, unlike some other agricultural commodities.

The cotton industry marketing system has proved to be successful because it is commercial, , well informed and responsive to market signals. It is recommended that

the industry improve on these arrangements rather than take the approach of setting up an statutory body.

The proposed strategies are therefore addressed to the various sectors:
Individual Growers
Processors (ginners)
Industry Organisations

8.5.1 Growers

Individual growers are price takers and can exert little influence on prices received. The market is too complex to allow individual producers to monitor all aspects of the cotton trade. There are certain strategies farmers can follow, however, such as:

(1) They can actively request that processor/marketers and merchants provide objective testing results to allow an improved assessment of the spinnability qualities of the cotton they have produced

(2) They can take an interest in and seek information on:
- Plant varieties to ensure they maximise returns and gross margins
- World cotton trends
- Flexibility in the timing of supply

(3) They can make better use of the wide range of risk management techniques available. Whilst growers do use futures and hedging, they usually do not fully utilize the more sophisticated techniques available.

(4) They could more easily calculate whether to use a pool arrangement, with a clear idea of the up and downside risks

(5) They could explore the possibility of contract growing to meet the specific needs of a spinner or processor

8.5.2 Processors

Australia's ginners usually are also cotton growers or have business links with growers, and usually are marketers as well. Consequently, they are vitally concerned with returns to cotton farming. They have a strong commitment to the Australian industry's success. They also contribute to the industry's public relations through the ACF.

On the other hand, the international merchants are purely buying and selling a commodity and have no particular loyalty to Australia. Whilst international merchants have provided benefits to growers, as set out in Section 5, they have no special interest in promoting Australian cotton.

We recommend that Australian processors consider extending their role in marketing by:

(1) Offering flexible arrangements to growers which provide the alternatives offered by merchants. We note that this is happening in many organisations.

(2) Actively pursue the introduction of objective measurement testing by HVI and the phasing in of cotton purchases from growers based on HVI objective measurement.

(3) Consider an increase in overseas promotion of Australian cotton to take advantage of its high and growing reputation. This expense can be tested to ensure it is cost effective.

(4) Consider a greater involvement in maintaining a viable domestic textile industry and seeking new cotton processing opportunities

(5) Consider greater use of custom ginning arrangements with spinner buyers.

8.5.3 Merchants

(1) We recommend that the merchants should actively pursue the introduction of objective measurement testing by HVI and the phasing in of cotton purchases from growers based on HVI objective measurement.

8.5.4 Industry Associations

(1) The organisations which now provide services to cotton growers should liaise frequently to ensure maximum support is given to the strategies outlined above. Without close and constant relationships, gaps or overlaps in functions will occur.

(2) We recommend each organisation consider its role and how it fits with others. By exchanging this information and adjusting their roles as necessary, the assistance to the industry will be maximised.

(3) There is a need for an industry organisation to take on the role of providing a generic industry and market information and analysis service, which is not really performed by any organisation at present. This would best be carried out by a revamped ACF (see Section 7.3).

9. RECOMMENDED ACTION PLAN

The recommendations that follow are addressed to all sections of the raw cotton industry, including plant breeders and textile manufacturers.

(1) Cotton Classification and Measurement

As set out in detail in Section 6, the trend to HVI testing is irreversible and is accelerating.

Recommendation 1: The Australian raw cotton processing industry should take steps, which some have already done, to install HVI facilities. The goal should be to have all Australian cotton HVI tested by the 1994. Every bale of cotton should be individually tested by objective measurement. Initially, objective measurement should be supplemented with subjective manual assessment.

The industry has divided views on how testing should be carried out. In the USA it is done by the US Department of Agriculture. In our Asian markets industry associations are providing the facility to members. A number of Australian shippers already have HVI lines. The Australian wool industry has a private company which carries out the work.

Recommendation 2: Cotton growers should be paid on the basis of HVI objective measurement of their cotton, to ensure they are fully rewarded for the qualities of the cotton they supply. Naturally, there is a threat of discount where the qualities are not present. In balance, the reputation of Australian cotton will be enhanced and growers rewarded for supplying premium quality.

To achieve laboratory economies of scale, it may be an advantage to have a separate industry company to be responsible for the HVI testing. This would achieve uniformity of testing between shippers and facilitate liaison with overseas testing authorities to ensure testing methods and results are consistent with those of customers and computers.

Recommendation 3: Responsibility for HVI objective measurement should be given to a single entity, preferably the ACF.

Recommendation 4: Australia should plan now its requirement of new HVI lines, and order them as soon as possible.

Recommendation 5: The Australian industry should not await developments in HVI testing but actively participate in the development of new tests. It is understood newer faster tests are being developed by overseas test equipment suppliers for honeydew contamination and maturity. The use of these objective measurements by our customers will enhance sales projects and price premiums. Research in this area would be beneficial if it complements the new equipment being developed.

(2) Cotton Industry Organisation

The free market system operates effectively in terms of buyers and sellers knowledge of prices, choice of who to deal with and options on how, when and to whom to sell. The industry should retain this system. It does not need nor does it require a statutory marketing authority.

The key industry organisations are:

- Australian Cotton Foundation (ACF)
- Cotton R&D Corporation (CRDC)
- Raw Cotton Marketing Advisory Committee (RMAC)
- Australian Cotton Growers Research Association (ACGRA)
- Cotton Seed Distributors Ltd (CSDC)
- Various regional cotton grower associations
- [CSIRO - although not specifically a cotton organization, CSIRO has a major role in research]

Every two years the Cotton Conference brings together all sectors of the industry to discuss key issues. There is a high level of participation from all sectors.

The marketing function consists of a number of roles which the above bodies are involved in to varying degrees. The actual selling and distribution is carried out by the ginners and several international merchant firms.

Issues of product promotion, advertising, market research and product development of Australian raw cotton is primarily carried out by these firms in respect of their own product. They consider no sectional marketing organisation such as Cotton Inc. in the USA, is necessary. Success to date in developing overseas markets supports this claim.

The spinning industry in Australia and overseas has commented that it has little contact with growers in respect of communicating market trends and requirements.

Spinners Associations in key market areas reported very little or no contact with Australian suppliers. Australian marketers deal directly with customers and not with the industry body. Australia's reputation as a supplier is improving steadily and could be enhanced by industry level contacts.

Recommendation 6: Consideration be given to expanding the role of ACF to allow industry level information on long term issues and trends to become more readily available to Australian cotton growers. At present the grower receives a surfeit of information from commercial interests which is adequate for his current commercial decision making. The information recommended would be objective and assist in longer term considerations.

(3) Contract Marketing Arrangements

It is common in the various grain, meat, fruit and vegetable processing industries for processors (Uncle Toby's, Edgells, Goodman Fielder) and consumer outlets (McDonalds) to enter into direct contracts with farmers to supply their specific needs. Typical constraints specify seed used and size and quality of the product.

Cotton users state they often receive cotton which is not as good or is "too good", for their specific needs. Contract ginning is done in the USA.

Recommendation 7: Ginners and growers should develop a dialogue with spinners to investigate prospects for contract ginning and, in some cases, contract growing and ginning. This may allow price premiums for growers and cost savings for ginners in specific cases.

(4) Export Market Promotion

It was noted that Austrade offices in key customer areas had not had any involvement in cotton marketing. This is in sharp contrast to market research, introductions, promotions, literature supplied for other Australian agricultural commodities. Cotton markets have operated successfully without this assistance. However, it seems cotton's profile would be lifted if promotional material were available at Austrade offices and Austrade marketing people were at least a listening post in overseas markets for Australian cotton.

Recommendation 8: ACF send promotional material to key Austrade offices in major cotton buying centres. Consideration be given to any role Austrade could play, at minimal cost to Australian shippers.

(5) Plant Breeding Liaison

Australia's plant breeders need about ten years to develop new commercial species. To date successful results have concentrated on:

- higher yields
- greater strength
- insect resistance

Yield will continue to be the prime interest for growers. However, the development of a series of HVI tests will ensure new price structures develop which will reflect qualities now not included, or only partially reflected, in the price.

Recommendation 9: Australian researchers in plant breeding should be kept fully informed of these developments in a formal structure by marketers.

(6) Research Direction

Plant Breeding

Australian bred varieties have had a significant impact on lifting the reputation of Australia's cotton quality in recent years.

Recommendation 10: It is of great importance that Australia's expertise in this area is not allowed to diminish. CSIRO and Government Departments concerned should have succession plans in place to guarantee this advantage is not lost as key staff retire or move to other areas.

(7) Domestic Market

The concern over the likely decline in the market following the decision to accelerate the reduction in protection to textile and clothing industries should concern cotton growers. Whilst the size of this market is shrinking in relative terms it is still significant and has benefits beyond the quantity purchased as discussed in Section 8.

Recommendation 11: Cotton growers and processors should consider supporting a more gradual restructuring process to allow domestic consumption the chance to rationalise and survive as long term cotton buyers. They should actively support any investigation of other significant means of establishing cotton based industries.

Recommendation 12: Consideration be given to abolishing RCMAC, or amending its role if it is retained.

(8) Government Departments

The development of cotton growing in Australia has shown a steady growth and, considering the volatility of Australian agriculture generally, has had a relatively stable history. The crisis in the wool and wheat industry has seen a sharp rise in dry-land cotton growing. In 1991 the severe drought and falling cotton prices slowed this move from other sectors to dryland cotton. There are concerns that too rapid growth of new areas in the future could cause strains in the market and on research and development resources.

Improved prospects for grain prices in 1992, coupled with the cotton price, outlook should slow the trend.

Recommendation 13: The industry should request greater inputs of staff time by the Federal DPIE, the NSW Department of Agriculture and the QLD DPI to ensure primary producers considering cotton growing are well briefed on the commercial and agricultural risks before committing themselves to cotton growing.

BIBLIOGRAPHY

1. ABARE, Agriculture and Resources Quarterly, Vol 3, No. 4, December 1991
2. ABARE, Commodity Statistical Bulletin, 1990 & 1991, AGPS
3. ABARE, National Outlook Agriculture & Resources Conference Papers 1991 & 1992, Canberra, AGPS
4. ABARE, The Use of Cotton Options in Pricing Cotton: unpublished
5. Austin, N., "The Cotton Gin gets a Tonic", The Bulletin, Aug 1991
6. Australian Cotton Foundation, The Cotton Reels, 1990
7. AWTA Ltd, "Annual Review", 1990-91
8. Colton, R.T., "Cotton Fibre Quality", Agfacts P5.3.7, NSW Agriculture, 1991
9. ContiCotton, The World of Cotton, First Edition, 1989
10. Cotton Outlook, The Cotlook Indices, Liverpool
11. Cotton Seed Distributors Ltd, Variety Trial Results, 1990-91
12. Cotton Seed Distributors Ltd, 24th Annual Report, Wee Waa, 1989
13. Deussen, H., and Neuhus, L., Why does the Need for Finer, Stronger, and Cleaner Cotton Fibres require a Change in the Cotton Grading and Marketing System?, Schlafhorst Dokumentation, No. 21, West Germany, 1988.
14. Deussen, H., Some Thoughts on the Role of Cotton Spinning in New Spinning Technologies, Schlafhorst Dokumentation, No.10, West Germany, 1985.
15. Egan H., Fibre Share Statistics, Australian Wool Corporation, April 1991
16. Galmez, R., pers comm, February 1992
17. Hunter, Dr. L., HVI Testing: Its Use and Misuse, ICAC Recorder, September 1991
18. International Cotton Advisory Committee, Cotton: World Statistics, Vol.45 No. 1, 1991
19. International Textile Manufacturers Federation, Spinners Committee, Meeting Reports, USA, Jan 1991
20. International Textile Manufacturers Federation, 1991 International Production Cost Comparison, 1991
21. ITMF Spinners Committee, "Meeting Reports - United States of America", 7-12 January 1991

22. ITMF Spinners Committee, "Recommendations to the Australian Cotton Industry", May 1991

23. Japan Cotton Traders' Association, Japan Cotton Statistics, 1990

24. Leary, R.H., "Cotton Characterisation", Textile Asia, June 1991

25. Leeder, J.D. and Gorden, S.G., "Investigating the Fibre Properties of Australian Cotton", The Australian Cottongrower, Toowoomba, March - April 1991.

26. Moir, B., "Cotton Outlook and Issues", National Outlook Agriculture and Resources Conference, Canberra, Jan 1991, AGPS

27. Morriss, D., Cotton to 1993 Fighting for the Fibre Market, The Economist Intelligence Unit, Report No. 1151, 1988

28. Mues C., "An Analysis of Marketing Options for Cotton in Australia", 34th Annual Conference, Australian Agricultural Economics Society, Feb 1990

29. NSW Department of Agriculture AGFACTS, Cotton Fibre Quality, P5.3.7, 1991

30. Pappas, Carter, Evans & Koop/Telesis, The Global Challenge, Australian Manufacturing in the 1990's, Australian Manufacturing Council, July 1990

31. Prendergast, J., "Fundamentals of Classing", Fifth Australian Cotton Conference, The Australian Cotton Industry under the Microscope, Broadbeach, August 1990

32. Robert Jr, K.Q., "Prospects for a Finer Cotton Fibre", Textile Technology International, Sterling Publications, London, 1990.

33. Smith, T.W., "Cotton - the long term global outlook", Textile Asia, September 1991

34. Steadman, R.G., "Learning from the Competition", The Australian Cottongrower, Toowoomba, Jan - Feb 1992

35. Stolze, H.M., The Global Village Syndrome, International Textile Manufacturers Federation, 1991

36. Textiles, Clothing & Footwear Development Authority, State of the Industry Report, 1990

37. The Australian Cottongrower, Cotton Year Book 1989, 1990, 1991

APPENDIX A

List of People Interviewed

Australian Based

Growers And Ginners

Mr Dick Browne	Manger, Gwydir Valley, Auscott
Mr David Boyd Miss Helen Murray	Managing Director, Darling River Cotton and Economist, Darling River Cotton
Mr Denis Hughes Mr Jim Prendagast	General Manager, Marketing and Assistant General Manager - Marketing Namoi Cotton Co-operative
Mr Bob Dall'Alba	General Manager - Trading, Queensland Cotton
Mr John Howes	Managing Director, Cotton Trading Corporation
Mr David Montgomery	Managing Director, Dunavant Enterprises
Mr Bill Moore	Managing Director, Volkart (Australia) Pty Ltd

Others

Maree McCaskill	Executive Director, Australian Cotton Foundation
Lindsay Bennett	Special Projects Officer
Mr John Blood	Chairman, Australian Cotton Research and Development Corporation
Mr Ralph Schulze	Executive Director, Cotton Research & Development Corporation
Dr Norm Thompson	CSIRO Cotton Research Unit, Narrabri, NSW
Mr Wally Carter	Chairman, Raw Cotton Marketing Advisory Committee
Mr Pat Apperson	Apperson Management
Mr Richard Lamb	Austrade, Canberra
Mr Rob Dickson	Sara Lee Personal Products
Mr Phillip Stoneham	General Manager, Denim, Bradmill Textiles Pty Ltd
Mr Trevor Dawson	Managing Director, Rocklea Spinning Mills
Mr Chris Gorst	Rocklea Spinning Mills
Mr Peter Kreitals	Executive Director, TCF Council
Mr John Leech	Chief Executive Officer, TCFDA
Mr John Leeder	Cotton OIC, Melbourne College of Textiles
Mr Stuart Gordon Mr Bob Stedman	Department OIC
Mr Bob Galmez	General Manager, Bonds Spinning Mills
Mr Sas Douglas	Australian Wool Testing Authority
Mr Ross Keeley	Queensland Cotton Grower, (former marketing manager)

Overseas Based People

Members of the ITMF Spinners Committee

Mr Tito Burgi	President, Gernona Manifatture s.r Udine, Italy
Mr Hugh S.M. Chiang	Executive Director / Mill Manager Pentex Sdn. Berhad, Malaysia
Mr Steven Chen	Manager, Tah Tong Textile Co. Ltd, Taiwan
Mr John Curran	Cotton Buyer, J&P Coats Ltd, Liverpool, UK
Mr Sebastian Otto	Chairman, Spinner Committee ITMF, Principal of Heinrich Otto Spinning and Weaving Mills, West Germany, Greece and Central America
Mr Herwig Strolz	Director, ITMF, Zuruck, Switzerland
Mr Walter Hrivnatz	R&D Manager, Sanista Textiles, Bunge Group, Sao Paulo, Brazil

Japan

Nr Fumio Kano	Manager, Planning Department The Japan Cotton Trader' Association
Mr Itsuo Fukai	Manager, Raw Materials Department
Mr Kozou Tsuchida	Manager, Raw Materials Section Nisshinbo Industries, Inc.
Mr Minoru Asda	A/Secretary Raw Cotton Committee Japan Spinners' Association
Mr O. Matsumoto	Director, Naudio Company Ltd
M/s Prue Wigley	Trade Commisioner
Mr Andrew Veness	Vice Consul
Mr Shigeru Ohmori	Asistant Marketing Officer Australian Consultant General, OSAKA

South Korea

Mr Chun Chul-Soon	Managing Director Spinners & Weavers Association of Korea
Mr Sang Ki, Choi	Deputy General Manager, Procurement Department Kyungbang Limited
Mr Kyu Huh	Manager, Testing Department Korean Textile Inspection & Testing Institute
Mr Choon-Youn Rhee	Senior Commercial Advisor Austrade, Seoul

Taiwan

Mr Charles Chin	Secretary General Taiwan Cotton Spinners Association
Mr William F. Hsu	President Taipei Cotton Traders Association
Mr Steven Chen	Manger Tah Tong Textile Co. Ltd
Mr Martin Walsh Miss Daphne Wang	Trade Development Director Market Information Officer Australian Commerce & Industry Office (A.C.I.O.) - Taipei

Thailand

Indonesia