A Review of the Australian Cotton Industry - Trends and Issues

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1. Introduction

The Australian Cotton Industry has for the past 20 years been the benchmark for profitability, productivity gains and management expertise across the farm sector. Other additives to this mix have been it's reliance on self funded R&D and on price risk management mechanisms which have been the envy of other industries. The challenge now for the industry is how it handles it's mature phase and the range of issues, both international and domestic, which confront it.

2. Supply and Demand Trends

2.1 Global Fibre Market

World fibre demand fell in 2001 following nine years of continuous growth as global economic recovery stalled (Table 1).

Table 1: World Fibre Demand (1982 – 2001)

	1982	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Total Man-made Fibres	13.10	17.65	17.70	18.49	18.92	20.24	20.82	22.04	24.72	25.48	26.44	28.34	27.94
% of Total fibre demand	44.38	46.11	46.44	47.42	48.30	50.17	50.93	51.77	54.52	55.71	56.06	57.29	57.01
Total Natural Fibres	16.42	20.63	20.41	20.50	20.25	20.10	20.06	20.53	20.62	20.26	20.72	21.13	21.07
% of Total Fibre Demand	55.62	53.89	53.56	52.58	51.70	49.83	49.07	48.23	45.48	44.29	43.94	42.71	42.99
All Fibres	29.52	38.28	38.11	38.99	39.17	40.34	40.88	42.57	45.34	45.74	47.16	49.47	49.01

Source: Textile Outlook International, (July –August 2002)

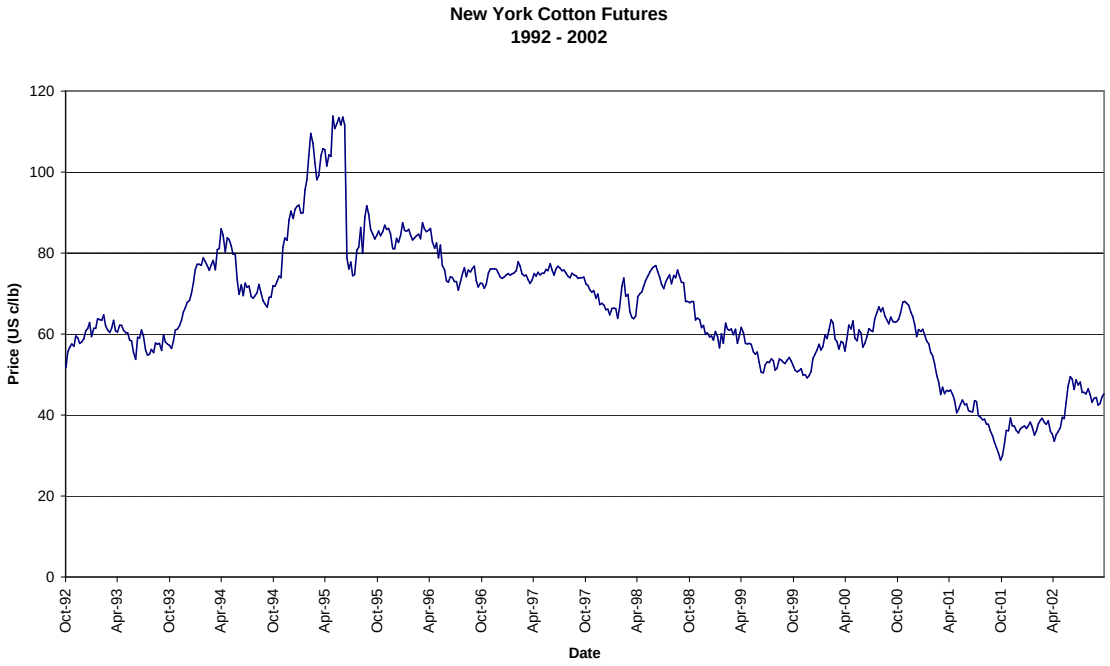
NB: Man-made fibre demand figures based on production data; natural fibre demand based on consumption to avoid inaccuracies arising from year to year stock variations.

- The major contributor was reduced production of synthetic fibres – down for the first time in the fibre's history.
- Demand for natural fibres was also down given lower wool demand, however cotton utilisation remained static.
- Strangely, the market share of natural fibres rose in 2001 (up from 42.71% to 42.99%) reversing temporarily the longer term trend given the more rapid fall in man-made fibre demand.
- All fibre prices fell in line with rising stocks to use ratios, the exception being wool where concerns exist on the level of output.
- Problems of over-capacity look set to continue in the man made fibre industry. Whilst many producers are cutting back production, Chinese capacity continues to expand.

2.2 Cotton Market

- Given the supply and demand trends in the global fibre market, cotton prices fell to their lowest levels in 30 years in 2001 - under US 40cents/lb(Figure 1).

Figure 1: Cotton Prices (1992-Current) (US cents/lb)



- Average cotton prices in 2001/02 where approximately 27% lower than in 2000/01
- The global cotton stocks to use ratio peaked above 50 in 2001/02 and is forecast to fall to 45 in 2002/03 (Table 2). However, with some entities are predicting a lower ratio (eg USDA). World production is expected to fall by 8% (USA down 12% and China down 8%).

Table 2: Trends in Global Cotton Supply and Demand (2000/01 – 2002/03)

	2000/01 m.tonnes	2001/02 m.tonnes	2002/03 m.tonnes
Production	19.41	21.42	19.16
Consumption	19.76	20.07	20.55
Closing Stocks	9.27	10.63	9.23
Stocks to Use Ratio	46.91	52.96	44.91

Source: International Cotton Advisory Council (ICAC)

- In essence low cotton prices during 2001 have internationally stimulated demand and deterred growers from planting cotton and inventories are now running down from historically high levels. As a result cotton prices have recovered during the latter half of 2002.
- Strong economic growth in China is expected to lead to increased domestic raw cotton consumption. Also as restrictive import quotas are progressively loosened under WTO obligations Chinese imports will increase (some commentators forecasting by 700%), resulting in China probably becoming a net importer after traditionally being a net exporter.
- Despite forecast higher world cotton prices, Australian cotton production is expected to range between 1.4m and 1.6m bales in 2002/03 given limited irrigation water availability, continuing relatively low cotton prices and the high price of competing summer crops especially grain sorghum.

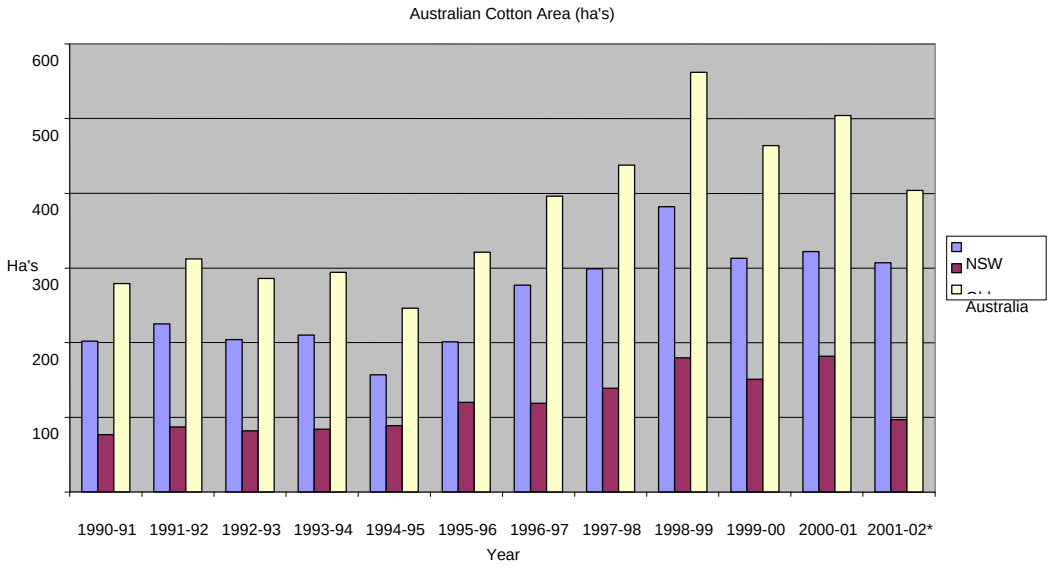
3. Subsidies and the Impact of US Farm Bill

- Agricultural support in OECD countries, despite declining during the early 1990's is now back to levels which applied prior to the commencement of the Uruguay Round (approximately 40% of total producer returns).
- In the USA in 1999/00 support to cotton growers was 32% of total returns.
- If the USA was to remove all trade barriers on textiles and clothing imports and all cotton grower subsidies, the average income of Australian growers would increase by AUD $42,000 via a 7% increase in Australian production and export price. *(Source: Centre for International Economics Report)*.
- The US Farm Bill (2002), signed by the US President on 13 May 2002, has an estimated 10 year cost of US$180b, which is US$44b in excess of total US support outlays (US$136b) for the decade ending 2001.
- "Target Prices" (support prices) in the new Bill, whilst marginally lower on a per unit production basis than those applying before 1996, will result in larger total outlays given the decline in world agricultural prices since 1996. The Bill also enables payments to be decoupled from previous historic production/yield levels and acreage reduction programmes - this factor, irrespective of the level of target prices, will result in increased production.
- US cotton producers are guaranteed via the "Target Price" payment of US72.4 cents/lb which is considerably in excess of current world prices.

4. Trends in the Australian Cotton Industry

- The Australian cotton industry has experienced some 20 years of unparalleled growth, despite a dip in production levels during the mid 1990's. Areas under cotton have reached 500,000 ha's and production has exceeded 3m bales (Figure 2).

Figure 2: Australian Cotton Area (1990/01 – 2001/02) (000'ha's)

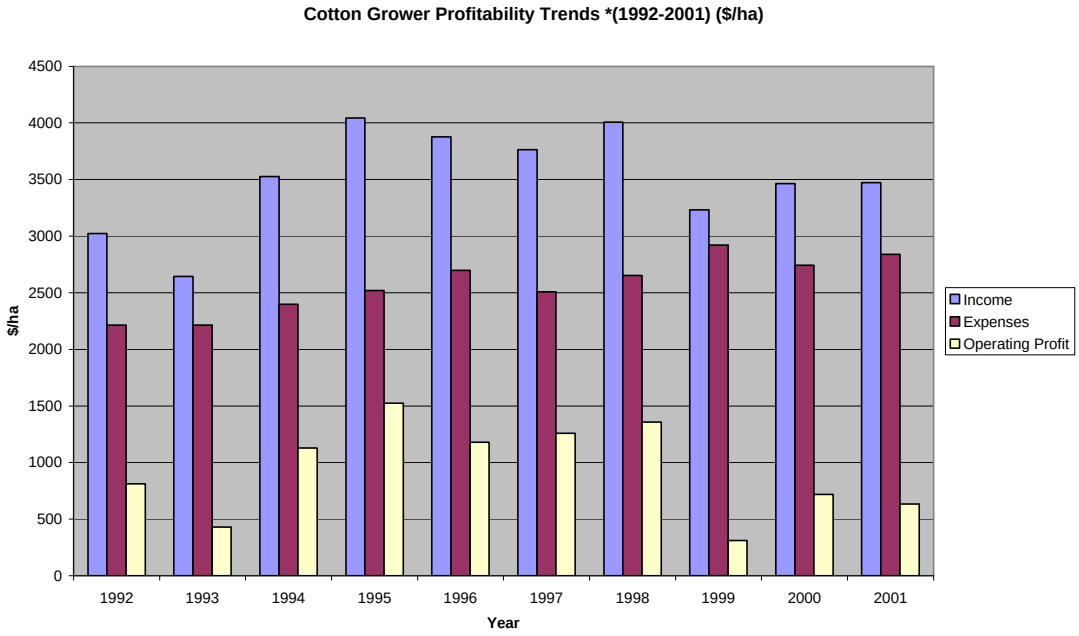


Source: ABARE and RCMAC

** provisional*

- Whilst it is a small producer relative to China, USA, Indian, Pakistan and the CIS, it remains the third largest exporter behind the USA and Uzbekistan.
- Grower profitability has been markedly lower since 1998 as demonstrated in Figure 3.

Figure 3:



Source: Boyce Chartered Accountants, Australian Cotton Comparative Analysis, 2001

Includes Gwydir, MacIntyre, Macquarie, Namoi Valleys and Emerald Irrigation Area.

Expenses exclude interest payments

- Profitability differentials between the "average" and top 20% growers, are illustrated in Table 3. The majority of the difference is explained by the higher yields of the "top 20%" (0.93 bales/ha) and lower costs ($150/ha), providing for a higher Operating Profit/bale of $66/bale.

Table 3: Cotton Grower Profitability * (2000/01) ($/ha)

	All Farms	Top 20%	Bottom 20%	Low Cost	Large Growers (Greater than 3250 ha).
Operating Profit (Loss)**	633	1291	(594)	976	1021

Source: Boyce Chartered Accountants, Australian Cotton Comparative Analysis 2001.

Includes Gwydir, MacIntyre, Macquarie, Namoi Valleys

*** Excludes interest payments*

- Notwithstanding the above comments, the cotton industry is now a phase industry given constraints on resource availability especially in relation to irrigation water. Whilst the potential exists to develop the cotton industry in Northern Australia, numerous hurdles must be overcome for this to become a reality.
- The industry was the first in Australia to successfully introduce GMO technology in the form of Ingard and this will be followed by the release of twin-gene technology in 2004/05 (Table 4).

Table 4 Maximum Ingard Area (Australia) ('000 Ha's)

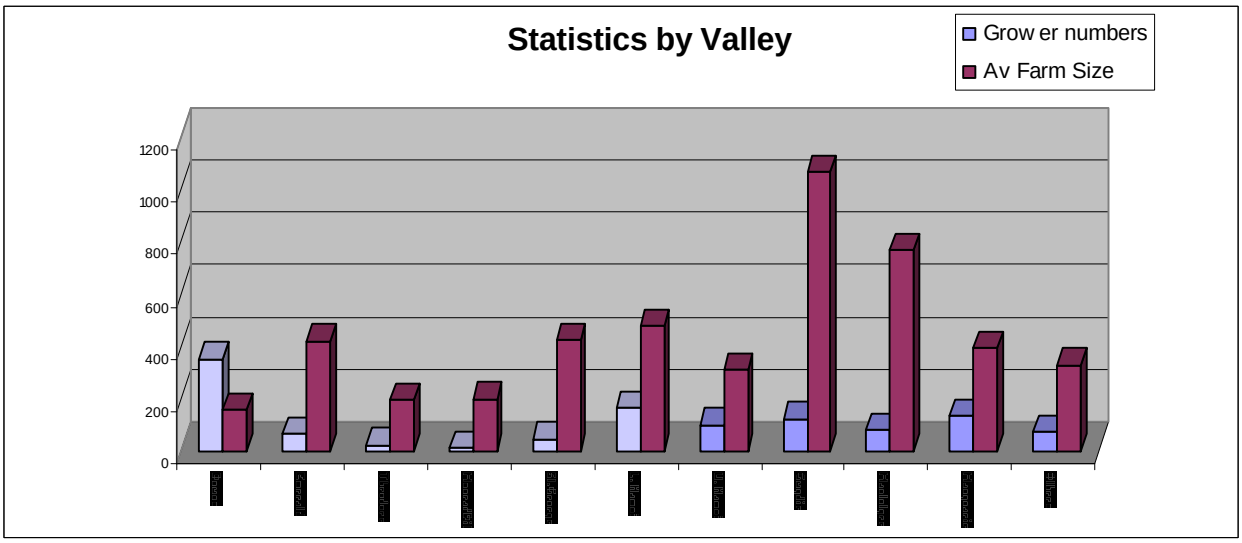
1996/97	1997/98	1998/99	1999/00	2000/01	2001/02
50 (10%)*	75(15%)	100(20%)	125(25%)	160(30%)	150(30%)

Source: Cotton Year Book

*Bracket indicates % of total cotton area

- NSW remains the heartland of the industry as illustrated previously in Figure 3. Additionally, the average farm size is higher in NSW especially in some river valleys and this has some interestingly implications for the level of technology adoption (Figure 4).

Figure 4: Grower Numbers and Farm Size by Valley



Source: Cotton Industry Year Book

- Given the historic profitability of the industry relative to the other Australian broadacre and irrigation industries it is not surprising that the level of productivity growth over the past two decades has been extremely high relative to other industries, however no detailed time series data is available (Table5).

Table 5: Productivity Growth

Australian Broadacre, Diary and Cotton Industry Productivity Growth (Annual Rate of Change, 1977/78 to 1998/99)

	Productivity %
Zone	
Pastoral	2.7
Wheat – Sheep	3.2
High Rainfall	1.0
Industry	
Cotton	Greater than 3.6?
Cropping	3.6
Mixed Crops – Livestock	2.6
Sheep	0.6
Beef	2.1
Sheep-Beef	1.4
Diary*	1.6

**Dairy data 1978/79 to 1996/97*
Source: ABARE

- Despite the scarcity of information it is relatively safe to hypothesize that as with other industries, the linkage between productivity growth, scale of activity, turnover, profitability and return on capital is undisputable and that this trend will continue to gather momentum.
- Technology is both capital intensive and size efficient and it's continuing application at the "top end" of the cotton industry (as with the broader farm sector) will continue to further polarize the industry's financial performance.
- Given the increasing consolidation of the number of input suppliers (both manufacturers and distributors) in the agribusiness sector – the concentration of production and profitability at the "top end" of both the cotton industry and farm sector generally has some interesting ramifications for these entities.
- Additionally, the introduction of the twin gene seed technology in the cotton industry will have a further marked impact on chemical volumes and the profitability of distributors (and others) servicing the industry.
- As with other elements of the agribusiness value chain opportunities also exist in the cotton industry to rationalize the number of entities involved, especially in relation to ginning.

5. Maintaining/Improving Australian Cotton's Place in World Markets

- Over the past two decades the industry has built a strong price point based on:
    - producing a quality product.
    - the lack of product contamination.
    - being a reliable supplier.
- These factors have positioned Australian cotton well relative to other cotton growths (Table 6).

Table 6: Basis Differential Australian Cotton versus Other Growths

SJV Acala (GC 21-2-36)	+ 200 points
Zimbabwe	+ 100 points
Australian SM	Basis
California/Arizona	- 200 points
Ivory Coast (West Africa)	- 200 points
Chinese Xinjiang 129	- 200 points
CIS	- 400 points

Source: Queensland Cotton

This has been achieved by the following:

- Robust R&D programmes supported by quality scientists.
- Developing/attracting on-farm management capable of utilising new and/or developing technologies.
- The integrity of the chain from farm gate to spinner.
- The need exists to maintain the focus and not be distracted by some of the other issues confronting the industry.

6. Some Selected Industry Challenges

It would be remiss of me in a paper of this type not to briefly comment on some of the plethora of current challenges/issues confronting the industry.

Resource Management

- The CoAg Water Reforms (1993) and National Competition Policy whilst "well meaning" in terms of resource use efficiency have not yet resolved water title issues.
- The result to date has been one of uncertainty and clearly this does not assist capital inflows into the industry (either equity or debt). Furthermore, whether the risks are real or perceived, uncertainty pushes up the cost of capital at a time when the industry can least afford it.

- Whilst the industry has dedicated very significant resources to resolving water and property title issues – process has been slow and at times frustrating for all involved. Additionally, this has diverted attention away from key environmental management issues, including salinity.
- Notwithstanding the above comment, the industry's commitment to improved environmental management is demonstrated by the success of it's BMP programme. At the end of the 2001-02 season, 50% of growers were progressing BMP, 20% were audit ready and 18% had conducted an initial compliance audit.

6.2 Technology

6.2.1 Bio Technology

- It is clear that the relationship between biotechnology and the cotton industry will strengthen over time.
- Whilst the GMO debate has produced a massive amount of misinformation – some of which has reached "urban myth" status, the facts speak somewhat differently. It has been conveniently forgotten by some that the vast majority of crops are the product of scientific genetic modification and selection over many centuries. Biotechnology simply extends and quickens plant breeding techniques which have been in use for the past 100 years. Additionally, there are a range of environmental benefits stemming from biotechnology adoption including reduced soil erosion, improved water retention and more minimum tillage.
- In essence, biotechnology can be used on a number of ways:
- As a diagnostic tool to assist researchers improve their understanding of living organisms.
- The use of transgenics in normal breeding programmes.
- The benefits to the industry of Ingard and the future benefits of twin gene technology are indisputable. Biotechnology will also benefit industry by-products such as seed, oil and meal.
- Whilst there has been considerable progress, despite some setbacks, in the management of Fusarium wilt; biotechnology will almost inevitably in the future provide the industry with a Fusarium resistance gene.

Precision Agriculture

- Involves a mix of technologies, including ground based monitors and GPS facilitating the wider use of vehicle guidance systems, variable rate technology, remote sensing (vigour maps) and information systems to process data into sets/maps capable of easy interpretation.
- Currently there is a tendency for precision agriculture to emphasise the technology rather than the "bottom line" results it can deliver together with improved environmental management (targeted fertiliser placement, reduced pesticide application) and farm manager skill set.
- Data interpretation skills are needed and data needs to be properly structured otherwise evaluation can be difficult and management is confronted by "information overload" – drowning in information, thirsty for knowledge.
- Solutions to yield variability will significantly increase industry productivity and profitability – the next challenge is tackling quality variability.
- Despite its critics, precision agriculture represents a "sea change" in agricultural land management. Additionally, as data platforms expand opportunities exist to utilise the database in integrated resource management programmes at the regional and catchment/valley levels.

7. Conclusion

Whilst the industry is currently confronted by a range of issues, not the least of which has been declining profitability given reduced cotton prices, I have no doubt that the quality of the resource base it has built will enable it to continue to build on it's reputation as a reliable supplier of quality cotton, a leading technology adopter with high calibre human resources positioned across the value chain. No doubt it's greatest challenge will come from the international scene where despite much debate farm subsidies in the northern hemisphere have not been reduced and trade barriers, especially in the non-tariff area, remain firmly entrenched.