

Cotton comparative analysis: An important benchmarking tool

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The 2001 Australian Cotton Comparative Analysis represents the first report by Boyce Chartered Accountants in conjunction with the CRDC. The drive from CRDC and Boyce to capture more participants over a greater area in the future will strengthen the value of the comparative analysis, which is already an important benchmarking tool.

The report will be made available to all cotton growers. Those growers who participated will receive an additional report comparing their figures to the industry average and the top 20 per cent.

Water continues to be the industry hot spot. As we address a number of issues in this report we have water management and distribution as a key component in our thinking.

OUR SAMPLE

The total production of the 56 participating farmers was 416,526 bales or 13.46 per cent of the estimated Australian irrigated crop (3,094,000 bales).

The analysis only includes the results of farmers who were able to plant, grow and pick their crop using normal irrigation practices.

The greatest departure from previous years in this report is the measurement of income. Over recent years the largest variation among participants has been the price. The impact of currency positions (both realised and unrealised), futures variations and the numerous marketing alternatives makes it hard to provide a meaningful comparison of gross income per hectare. So we used the average cash price (\$494) for the period 1 July 2000 to 30 June

TABLE 1: Components of the difference in profitability

<i>Land productivity</i>	65%
<i>Price</i>	12%
<i>Direct cost savings</i>	24%
<i>Interest</i>	1%
Total	100%

TABLE 2: Yield (bales per hectare)

	Average	Top 20%	Diff
<i>Last year</i>	8.08	9.58	1.50
<i>This year</i>	7.90	8.83	0.93
<i>5 year average</i>	7.89	8.80	0.91

TABLE 3: Value (\$ per bale)

	Average	Top 20%	Diff
<i>Last year</i>	\$429	\$450	\$21
<i>This year</i>	\$440	\$449	\$9
<i>5 year average</i>	\$453	\$467	\$16

TABLE 4: Operating costs (\$ per hectare)

	Average	Top 20%	Diff
<i>Last year</i>	\$2,744	\$2,670	\$74
<i>This year</i>	\$2,839	\$2,671	\$168
<i>5 year average</i>	\$2,734	\$2,594	\$140

2001.

For many of the farms in the analysis, the 2001 crop will be remembered for the two floods in November 2000 and January 2001. These wiped out some areas and significantly reduced yield in others.

The prolonged wet period also contributed to a lot of denitrification, a problem that did not become fully apparent until the end of the season when crops started to run short of nitrogen.

Other problems noted were that lack of rain in the winter of 2000, which resulted in poor trash breakdown. New fields, laser re-levelled fields and those without trash were found to produce higher yields.

On average, total income was similar to the previous year while the total costs increased by \$95 per hectare.

Interesting trends from 1992 to 2001 have emerged including the following;

- The net price per bale is very flat and remains below \$500.
- Yields per hectare are climbing but the average is below eight bales per hectare.
- The average net operating profit per hectare has actually fallen since 1992.
- In the past five years the top 20 per cent landholding farmers made 98 per cent more profit (after interest) than the average. This equates to \$1284 per hectare compared to \$648 per hectare.

The components of the difference in profitability are shown in Table 1.

- Acquisition costs for cotton country can amount to \$8700 per hectare (\$3500 per acre).
- Investment in technology required is growing at a rate faster than attributable yield and cost improvements.
- The top 20 per cent achieve a greater water use efficiency, which equates to an increased

TABLE 5: Cost of production (\$ per bale)

	Average Top 20% Diff		
<i>Last year</i>	\$340	\$279	\$61
<i>This year</i>	\$359	\$302	\$57
<i>5 year average</i>	\$349	\$297	\$52

TABLE 6: Labour (hectares per person)

	Average Top 20% Diff		
<i>Last year</i>	188	180	(8)
<i>This year</i>	180	229	49
<i>5 year average</i>	179	207	28

TABLE 7: Tractor horsepower per 500 hectares

	Average Top 20% Diff		
<i>Last year</i>	402	369	33
<i>This year</i>	414	360	54
<i>5 year average</i>	456	397	58

TABLE 8: Available picker heads per 500 hectares

	Average Top 20% Diff		
<i>Last year</i>	1.91	1.65	0.26
<i>This year</i>	2.32	1.39	0.93
<i>5 year average</i>	2.43	2.02	0.41

TABLE 9: Rotation

	Average Top 20% Diff		
<i>Last year</i>	44%	25%	(19%)
<i>This year</i>	35%	45%	10%
<i>5 year average</i>	43%	38%	(5%)

profit of \$450 per hectare.

KEY PERFORMANCE INDICATORS

Yield

On many of the farms in 2001, waterlogging and overcast conditions resulted in lower yields. There were also denitrification problems (see Table 2).

Price achieved

There was a large variation between the highest and lowest price received (Table 3).

The price at the start of the season was \$460. This price increased slowly during the year to a peak of \$625 in late November, before falling to a price of \$345 in mid June.

People who locked in a price early in the season did well this year. Again these figures show that any price above \$480 is a good price. A large number of adverse currency positions were realised. But many farmers still have a large volume of out of the money currency.

Operating costs

Areas where expenditure increased by more than \$10 per hectare were application, fertiliser, fuel and oil, insurance, R&M for pumps and earthworks, and wages.

There is still a surprising range with operating costs varying between \$2037 per hectare and \$4227 per hectare (before finance costs).

The average operating costs for the 'low cost growers' was \$2423 per hectare. The top 20 per cent of growers spent significantly more than the average on defoliant, contract picking, and fuel and oil.

A low cost of production per bale is the most significant feature of the top 20 per cent (Table 5). This is achieved by producing more bales of cotton from the same cost base.

Long-term average figures for the top producers prove that it is possible to achieve a benchmark in the \$280 to \$320 per bale range in a 'normal'

insecticide year. The extra yield of 0.25–0.5 bales per hectare costs very little.

Labour

The long term averages show the top 20 per cent of growers are achieving better results due to economies of scale on labour usage (Table 6).

An increasing number of farms are looking to outsource various operations based on priority agreements with contractors. Labour utilisation numbers often reduce when there is a marginal increase in hectares grown.

Tractor horsepower

Comments made for labour are also applicable for available tractor horsepower (Table 7).

Having the correct equipment to get the operations done on time is the most important consideration. On the other hand, over-capitalisation impacts on several cost centres that can increase costs, that is, labour and R&M.

Picking capacity

The trend has been that not many of the top 20 per cent have their own pickers or are picking less of their own cotton (Table 8).

With greater areas, more contractors were required to pick the crop.

Rotations

Growers were certainly aware of the benefits of a sustainable fallow program.

But short-term financial analysis does not prove that rotation is beneficial. Additional factors need to be considered when deciding how much country to rotate — management, agronomic, and environmental.

FIVE YEAR AVERAGES

It is interesting to look closely at the combined average figures for landholding farmers for the past five years and compare those figures with the combined average for the top 20 per cent landholding farmers for the same period. What

makes the top 20 per cent so much better than average?

In the past five years the top 20 per cent landholding farmers made 98 per cent more profit (after interest) than the average (Table 1).

With better land productivity (measured by higher yields) being the major feature of the top performers, it is easy to identify where farmers should focus their efforts and resources if they wish to improve their performance dramatically.

In other words, farmers should concentrate on growing their revenue rather than searching for dramatic cost cutting measures.

OTHER OBSERVATIONS

Over the years, many 'rules of thumb' have been developed and quoted by farmers, financiers and accountants.

- Cotton farmers are, in principle, debt free if, at year end, their equity in cotton pools covers their total borrowings.
- No more than 60 per cent of current crop proceeds should be tipped forward for tax purposes using pooling arrangements (while not developing country).
- The contingent tax liability associated with crop proceeds tipped forward (pools) should always be calculated and brought to account at year end when measuring your wealth.
- Debt should not exceed 150 per cent of average gross farm income (100 per cent when interest rates are above 12 per cent).
- High wage costs and machinery horsepower are a quick indicator of overall high costs of operations.
- Don't underestimate the value of knowledge, within your industry and worldwide. It can be difficult to keep up to date on the latest practices, but falling behind can cost you considerable amounts of money.

HOT SPOTS

The falling profit margins highlighted earlier need

to be looked at more closely.

Profitability has trended down for the past 10 years (1992–2001) for both the top 20 per cent and average growers. This is happening in an environment where we see land and licence values escalating, technology requirements increasing, skilled labour hard to access and government bodies imposing water reductions. All of which are placing pressure on growers to shift their focus from long term sustainability to short term profitability.

In this next section we explore those hot spots and the options facing growers.

Land values

In recent years we have seen unprecedented growth in the value of irrigation land — both developed and undeveloped. Water licences, that in the mid 1990s were trading at \$400 per megalitre, now range between \$1130 per megalitre and \$1450 per megalitre.

Acquisition costs — including land purchase, development costs and licence — for cotton country can amount to \$8700 per hectare.

Two major issues arise here. The first is that barriers are created for investors to enter the industry at these valuations and achieve a return on assets that is comparable to other (possibly safer) investments.

Secondly, growers need to review what the opportunity cost is on the equity they have in their properties compared to alternative investments.

This is based solely on land valuations. It does not include the investment required in machinery and building infrastructure — which again raises the crossbar on the return required to hold a competitive investment.

In the past, agricultural land was valued on market price and not on an earnings basis. But there is a growing trend by valuers to look at returns on assets using reports such as the comparative analysis and provide this information to potential purchasers.

Investors entering the market place will look at the variability of income, industry issues, government regulations and apply an earnings rate that a prudent investor would seek in that industry.

If the profitability of irrigated cotton continues to trend down, this will place pressure on valuations. As valuations reduce, liabilities as a percentage of total assets will increase and previous equity levels will be subject to review.

Machinery and technology Investment

The cotton industry remains at the forefront of the adoption of new technology. This investment in technology starts with the initial preparation activities and is present throughout the life cycle of the crop and beyond into marketing and distribution methods.

The question that needs to be continually asked is "What is the cost/benefit of new technology?"

This report highlights the importance and contribution that yield makes to the bottom line. Revisiting the trend line for yield for the past 10 years we see a slight increase from 7.66 bales per hectare in 1992 to 7.9 bales per hectare in 2001 — an increase of 0.24 bales per hectare. The investment that many growers have in technology today over and above their investment in 1992 is significantly higher.

The information gathered in this report is not substantive enough to pinpoint the benefits of new technology. What it does highlight is the increasing pressure on growers to achieve adequate returns on their investment.

A grower who is continually in the top 20 per cent described their strategy on new machinery and technology — "Don't be first there, but don't be last."

Water

The greatest single issue facing the cotton industry today and well into the future is the management of water. This resource is the most valuable and currently the one under the most threat by pending legislation.

It is essential that the water we have available to us is used efficiently. The comparative analysis over the past five years has captured data to measure water usage. Trends are developing that indicate the top 20 per cent of growers have greater water efficiency than the average farmer.

Over the past five years the top 20 per cent of growers grew 0.91 bales per hectare more and used 0.5 megalitres less per hectare.

The financial impact of 0.91 of a bale at \$494 a bale represents an increase in profit of \$450 per hectare.

There may be some debate as to the accuracy of water usage on various farms. But growers are taking closer notice of measuring water use efficiency as limited water availability obligates growers to use their allocation efficiently.

Accurate indications of what fields take the most water could result in significant water savings. There are commercial models that allow this to be done.

Decisions made using this information would include whether or not to re-level, field geometry (length, slope and furrow shape), changing the inflow rate or the length of time the water is applied.

The optimum application efficiency may be achieved by changing one or a combination of these variables. Remember — water is gold.

FEATURES OF TOP PERFORMERS

Over the past 15 years, we have seen many cotton farmers achieve top class results, even in years when seasonal or financial circumstances were less than favourable.

For those who have not seen this report before, or who wish to refresh their memories, we list below some of the distinguishing characteristics and features of the best farmers:

- **Controlled operating costs**

The best farmers keep their operating costs under control without sacrificing yield — operating costs of \$2200 to \$2600 per hectare

are achievable.

- **Productive labour**

The most efficient farms are operating with one permanent man for every 180 to 210 hectares.

- **Reliable machinery**

For farmers who decide to own tractors to carry out all field operations, capacity of 450 to 500 engine horsepower per 500 hectares is generally required. The best farmers aim to complete their picking operation within 21 days.

- **Sustainable farming techniques**

The top performers are continually looking at varied crops for rotation. These decisions are being made for agronomic and financial reasons.

- **Conservative levels of debt**

Many farmers are carrying large amounts of debt — levels of 40 to 50 per cent are common. By adopting sound, sustainable practices, the best farmers have been able to generate a significant cash surplus to repay borrowings.

- **Consistent marketing strategies**

- **Efficient financial management**

Good farmers run a tidy computerised farm as well as a tidy office, with all financial affairs being up to date and under control.

- **Timing**

All operations are carried out 'on time' on the best farms.

- **Planning and long term vision**

- **High yields**

The best farmers consistently achieve yields in excess of 8.0 bales per hectare year after year (assuming adequate water availability). Total farm averages of 9.75 bales per hectare have been achieved and are now a realistic goal.

- **Succession planning**

Succession planning requires significant planning

and time to ensure all parties to the succession are fairly treated. The development of off farm investment strategies should form part of every grower's program.