The Australian Cotton Industry
"Where has it come from, where is it going, what is it going to take"

Mark Morton
Principal, Agribusiness Concepts Pty Ltd,
Associate, RCS, Southern Australia

Introduction

The Australian Cotton Industry has been lauded as one of the success stories of Australian agriculture, noted for its technical innovation and its ability to recognise the challenges that confront it and establishing strategies to address them.

The industry is currently undergoing a fundamental change in the way it operates, the concerns with a continual decline in the terms of trade will become more pronounced as growers experience one of their highest growing cost years in conjunction with a weak cotton market.

Importantly the industry has focused on delivering improved performance through significant technical advancements and has delivered important environmental, social and productivity outcomes, yet we are now in the position where we are now asking have those developments delivered economic results. This paper will attempt to promote some of those questions and hopefully lead to and promote further discussion on what strategies should be developed and advanced in order to deliver an improved economic performance.

The cotton industry has that the industry has experienced declining terms of trade, which is no different from the rest of Australian agriculture; traditionally this issue has been addressed by pursuing productivity outcomes. The central concern is that these productivity initiatives have not overcome these economic issues and the position continues to deteriorate.

This discussion will provide an analysis of the grower's micro environment and pose questions for the industry as a whole

Background

The Australian Cotton Industry is today a capital intensive, technically sophisticated and highly mechanised industry. Australian cotton yields are the highest of any major cotton producing country. In the last 10 years, total cotton production has increased by 126% despite only a 50% increase in area grown (CRDC Strategic Plan 2003). This achievement has been driven by substantial improvements in crop genetics and agronomy and the extension and adoption of production best practice.

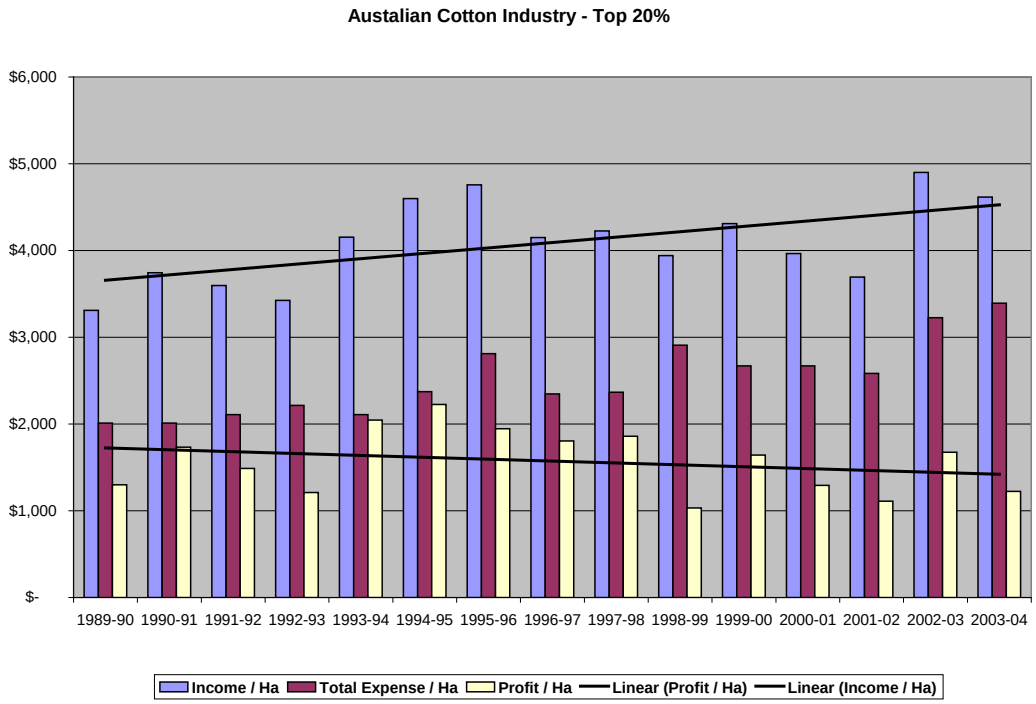
Despite this achievement a worrying trend is evident in the financial performance of most cotton farms. (ACCA report 2004). Operating profit for both the average and top 20% cotton businesses is declining and this trend is well established over the last 10 years, across a range of conditions, prices and water allocations. This is matched by a trend of increasing cost of production per hectare.

CRDC's 2004 – 05 Annual report refers to improving the industry's economic performance by specifically looking for evidence that grower's profit margins are maintained or improved over time through better whole farm management. Benchmarking reports of the Cotton industry demonstrate the reverse has been the case.

We refer to the Boyce Cotton comparative analysis to offer the following observations regarding the industry's profitability since 1989

- The anecdotal observation has been that the solution to the industry's profitability has been that "yield is king". The industry's top 20% has recorded an annual increase in gross revenue per ha of 2.9% over the last 15 years. The industry's plant breeding objectives have sought to deliver productivity gains of 2% per year, and have therefore been achieved.
- The average annual inflation rate with respect to the cost of production for the same period has been 4.10% p.a.
- The profit margin for a 10 year period has declined from $2,045 per ha in 1994 -95 to $1,224 per ha in 2003-04.
- The profit as a percentage of gross income over the same period has reduced from 49% to 27%.

Figure 1



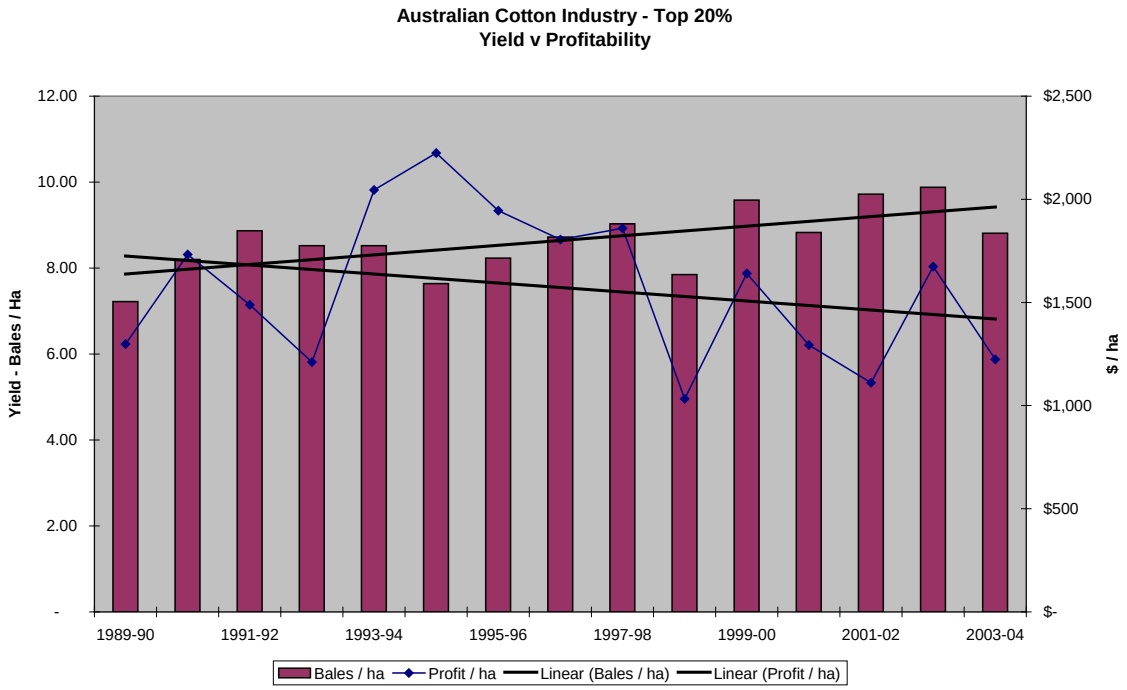


Figure 2

Source: Boyce & Co Cotton Comparative analysis 1989 to 2004

This second graph serves to reinforce the point that we have seen improvements in productivity yet grower profitability has declined. Offsetting this deterioration in profitability has been a dramatic increase in the value of land and water assets. As a result, debt to equity margins have been maintained or improved and farm viability maintained… more through asset appreciation than from accumulation of farm operating profits or repayment of debt.

The continuation of substantial capital appreciation or significant productivity gains is uncertain. As such the cotton industry is in need of a “breakthrough” to ensure future financial, environmental and social prosperity.

What are some of the reasons that may explain why there has been an increasing cost of production?

Overheads / “fixed” costs

One observation facing the industry over the last five years has been an increased level of natural resource insecurity and availability, in other words, uncertain access to water due to rainfall and government policy. However one observation is that there has not been a change in the cost structure to cope with the increased resource insecurity.

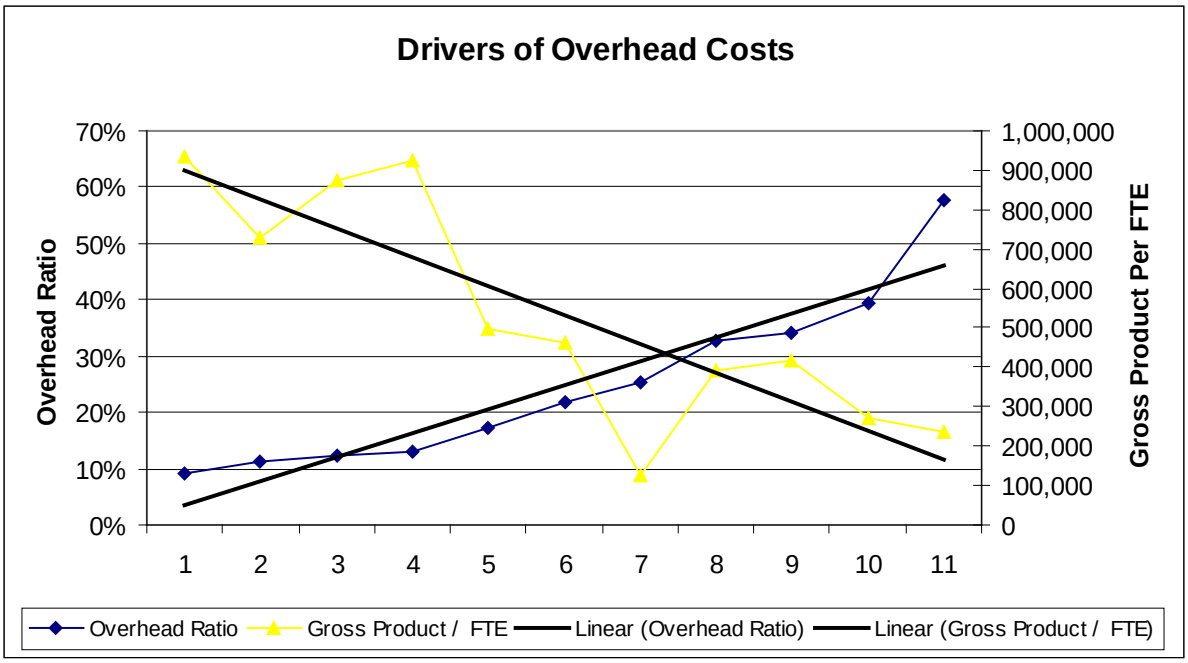
The Boyce analysis does indicate that during periods of reduced allocations those overhead/ fixed costs have increased per hectare simply as there are fewer hectares planted to absorb those costs.

The two most common classes of overhead costs which are responsible for these variations are labor and plant and equipment. In our own benchmarking analysis we examine the output delivered per full time equivalent (FTE) with respect to labor and the value of plant & equipment relative to the value of what is produced.

These two graphs make reference to an overhead ratio which is a measure of the level of income required to service those overhead commitments, note that this does not include finance commitments

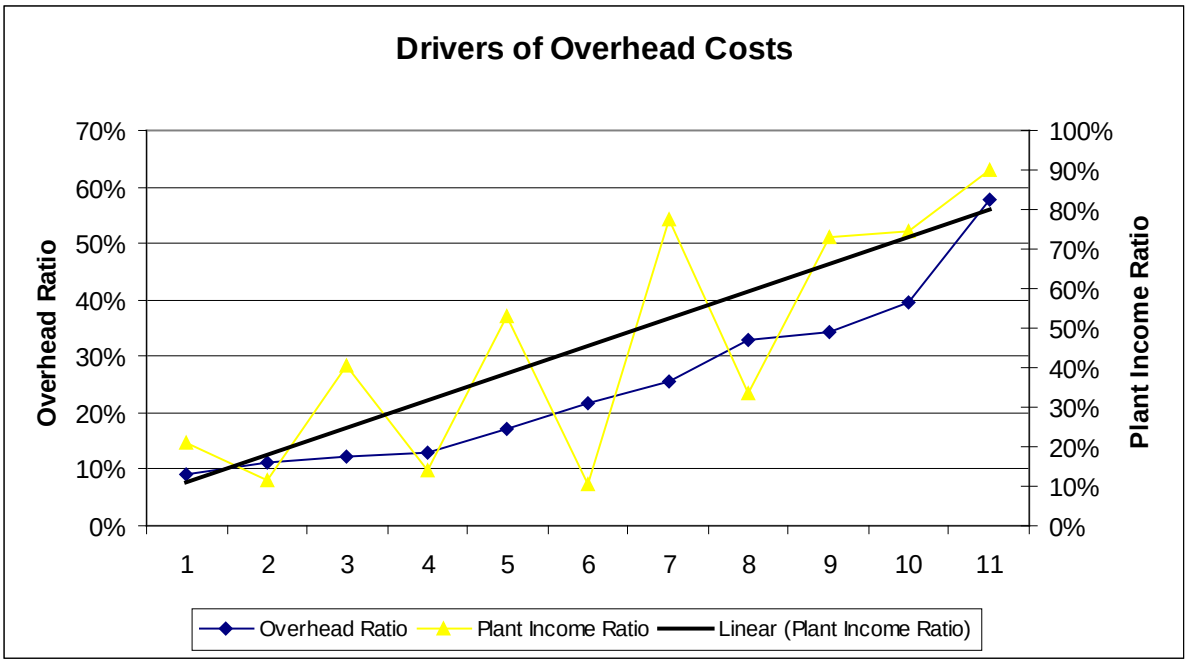
The graphs below serve to demonstrate there is a strong correlation between a high overhead ratio and poor labour productivity and increasing capital committed to plant & equipment relative to the income earned.

Figure 3



Source: RCS Profit probe™ benchmark data 2004/05

Figure 5



Source: RCS Profit probe™ benchmark data 2004/05

Q What are the value of your overhead drivers?

Gross margin drivers

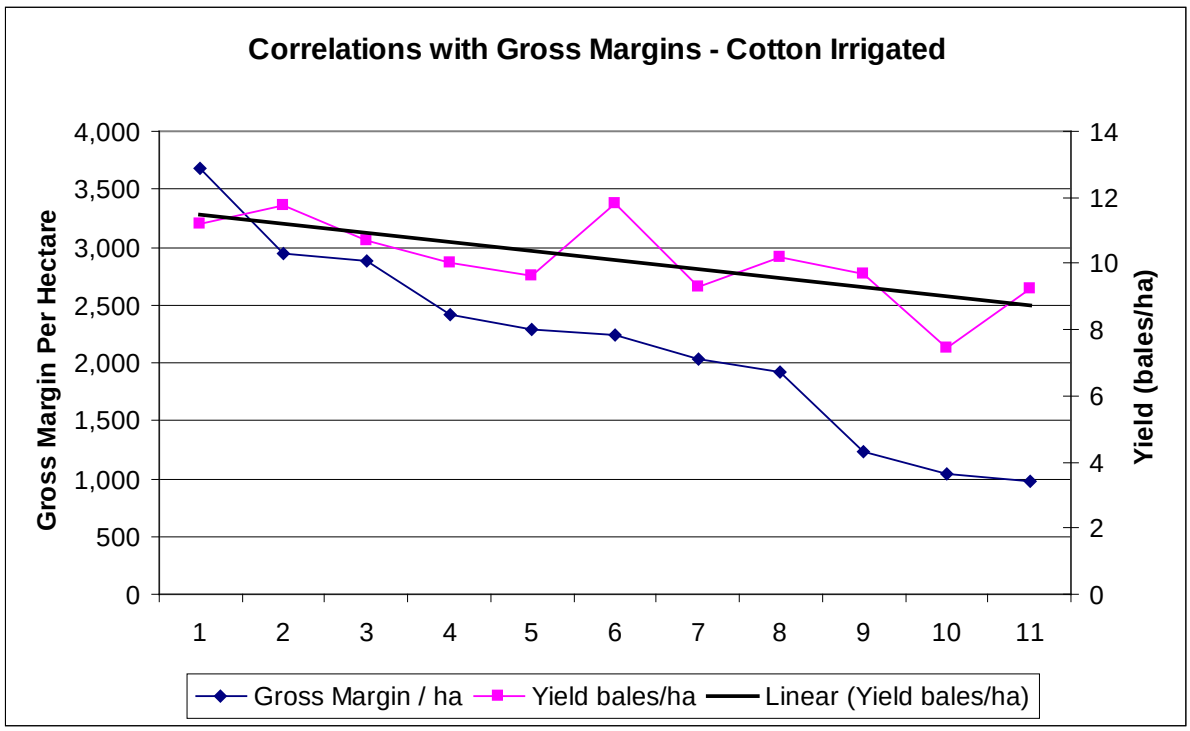
The three drivers with respect to influencing the gross margin are

- Yield
- Price
- Direct costs

The attached graph gives a representation of the importance of those factors

There is no doubt that productivity with respect to yield is the dominate driver of gross margin as demonstrated below

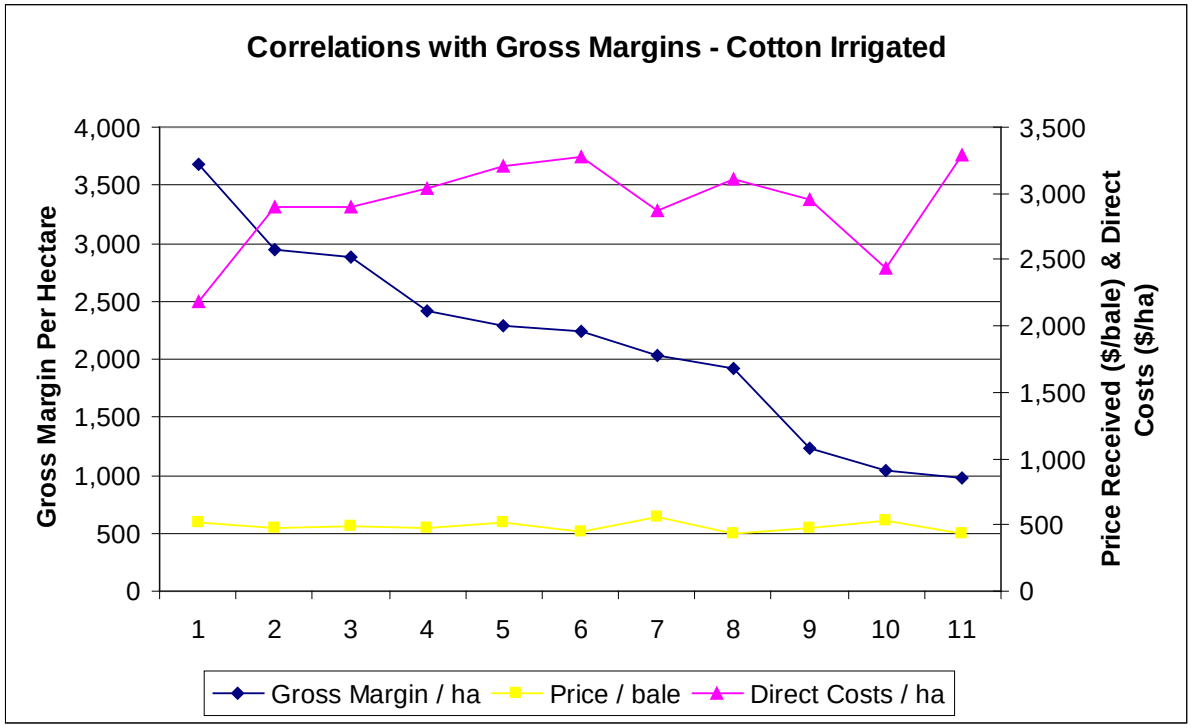
Figure 6



Source: RCS Profit probe™ benchmark data 2004/05

What are the correlations between direct costs and GM per ha?

Figure 7



Source: RCS Profit probe™ benchmark data 2004/05

As you can see there is some correlation between direct costs and gross margin performance however the much stronger correlation is yield.

A point of clarification, the price per bale also includes allowing for cotton seed returns as the direct costs include the total ginning charge

One of the questions that we do ask is, is there any difference in marketing practices between the participants in the survey, and the answer is no there isn't, this is not to say that marketing doesn't have an influence, there are other influences that have a much greater impact. What this does suggest is that growers tend to make marketing decisions at similar levels

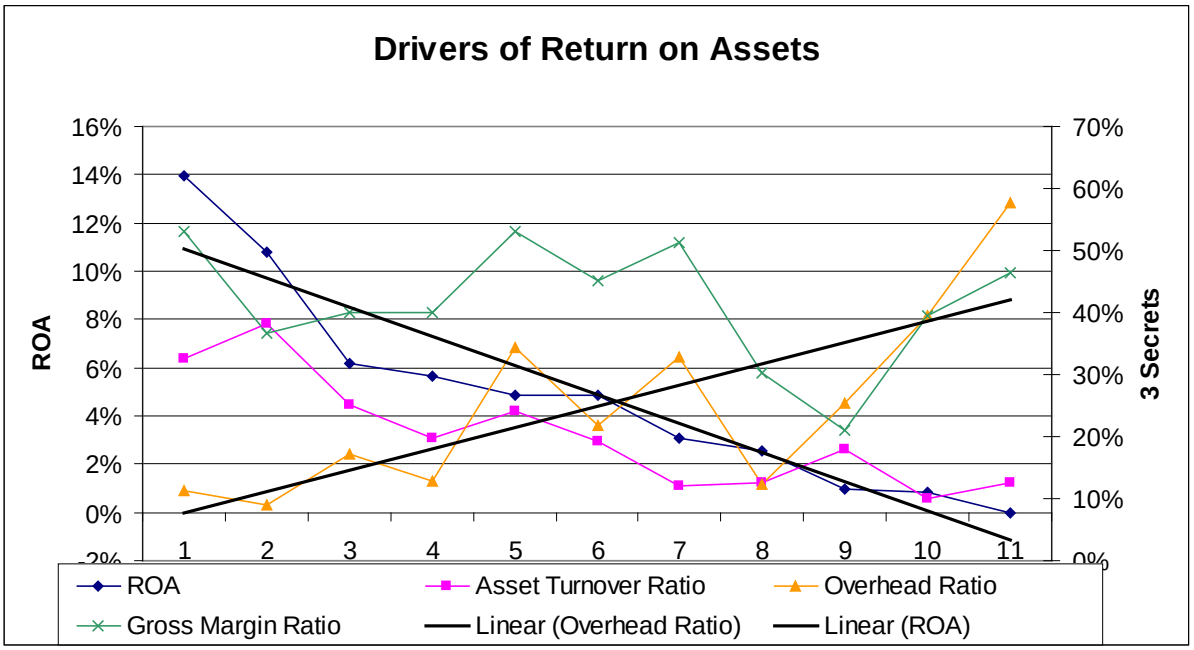
Conclusions

So at the micro /grower level what are the implications arising from the 2004/05 year

- Yield played a dominating impact
- The key feature of these businesses was the low overheads characterised by high labour productivity and high productivity with respect to plant and equipment
- The technical performance was coupled with good business design

The following graph serves to demonstrate these points

Figure 7



Source RCS Profit probe™ benchmark data 2004/05

Whilst this serves to provide an assessment of the 2004/05 crop, it still doesn't address. This serves to report on the year that has been, how de we do deal with the long term trend which is the dominating concern.

Industry view

I have endeavored to set out a two principles which we have found contribute to building profitable cotton business, the next question we need to ask is can we apply one of these principles to the industry as a whole, ie what view can we form about the "industry's overheads and its infrastructure.

To further dissect this question what would happen if we asked

> ***Of all the processes that are undertaken throughout the industry, how many of those processes add value, further what would the analysis be if we segregated those processes into three areas***
>
> - ***add value***
> - ***don't add value but are necessary***
> - ***don't add value and are unnecessary***

This line of thinking eminates from the Lean Thinking Enterprise Research Centre (LTEC), based at Cardiff University. To quote the LTEC most production activities only 5% of activities throughout a supply chain of activities actually add value, 35% are necessary non value adding activities and 60% makes up the last segment.

Eliminating this waste is the greatest potential source of improvement in corporate performance. The "lean" process came from the Toyota Production System and it

highlighted the significant performance gap between Japanese and western automotive industries.

What would happen if all the processes in the cotton production system from breeding & research through to spinning were subject to the same analysis?

So what are these principles?

- Specify what does & does not create value from a grower's perspective
- Identify all steps to design order and produce the product across the whole value stream
- Specify what does and makes those actions that create value without interruption, detours backflows waiting or scrap
- Only make what is pulled, from a grower perspective the industry seeks to operate from a demand pull perspective
- Strive for perfection by instituting a culture of continuous improvement.

At the front of this we need to define the term adding value and again I take a growers perspective the term adding value equates to improving economic efficiency is one of two outcomes either we increase economic output for one economic input or maintaining economic output and reducing input

Since the introduction of GM technology we have seen a significant change in demand for services required by growers and the accompanying infrastructure needed to support growers needs, yet despite the introduction of this technology growers operating costs have continued to increase at a rate that exceeds productivity improvements.

Why has this been the case?

Is it because each component of the cotton production system is considered individually, ie do input providers take account of the costs of the whole growing system. What would happen, again we need to ask the question from a grower's perspective, what constitutes adding value

As an industry we have pursued technical advancements yet we have seen no economic improvement, so what processes to do we need to add to deliver the improvement. The key word here is "and", what strategic analysis and business design processes need to be added to the technical advancements delivered to date.

RCS contends that this breakthrough will unlikely materialise from the critical success factors of the past i.e. technology to further increase production; nor can the industry reliably depend solely on future asset appreciation. RCS proposes the required breakthrough will more likely be found in identifying unique competitive advantages and extending Best Practice in *business design and management systems*. In other words, by nurturing and exploiting untapped "management capacity". Our 15 years experience of benchmarking the highest performers in agriculture shows that what differentiates excellence is *how* they manage not *what* they manage

<u>Expectations</u>

So what can growers do to assist this process?

I mentioned the concept of demand pull previously, in other words growers need to be very clear in what they expect from their service providers. It is our contention that when

producers ask themselves what is their personal and business vision and then ask the next question, what will it take to deliver to that outcome, when that is clear, growers are then in position to ask the service providers to deliver to those expectations

The graph below serves to illustrate RCS's experience with the grazing industry which demonstrates improvement in business performance following initial training and peer support

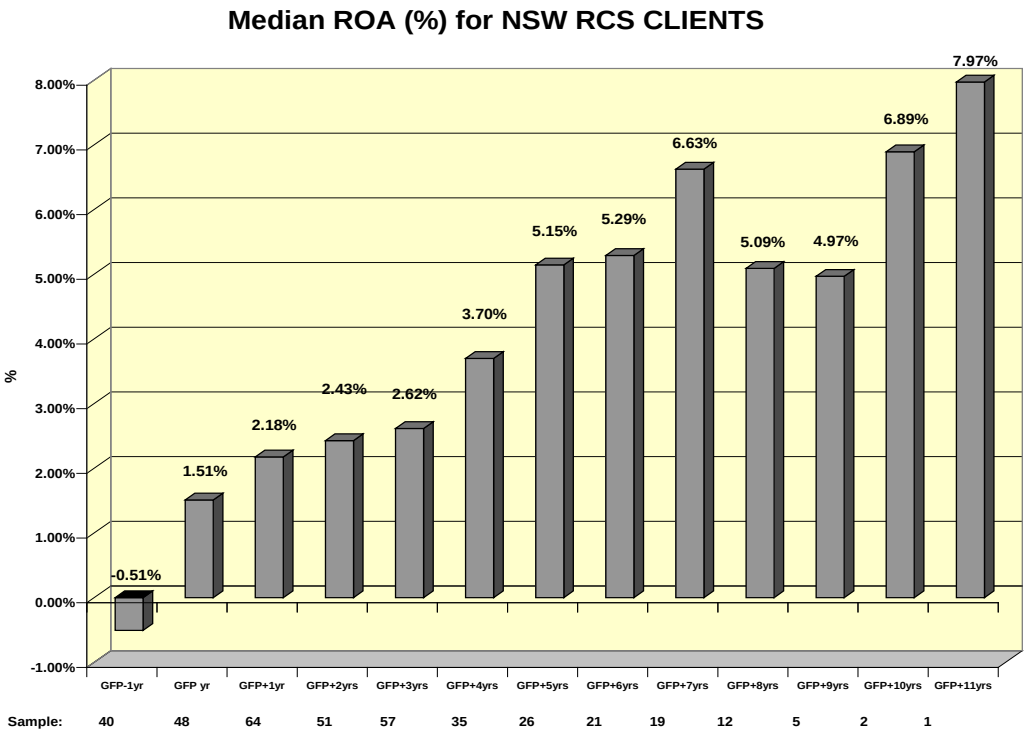


Figure 4

Source: RCS Profit Probe Benchmarking data 2003

The current database of Executive Link clients has a combined asset value of $1.56 billion. A conservative estimate of a 3.6 percentage point increase in profitability brought about by training equates to a net increase in profit among RCS clients of $54 million per annum.

"What would it take to repeat the same performance for Australia's cotton growers?"

Acknowledgements

Firstly thank you to the growers who participated in this survey and being prepared to expose themselves to the scrutiny that is associated with such a process

Thank you to Boyce & Co for continuing their Cotton Comparative Analysis, much of the analysis that we are able to conduct is off the back of their work and being able to correlate our findings with their analysis, we have an ability to ask further questions beyond the initial observations when we are able to examine two sets of data

Finally many thanks to Jane Appleby from RCS's office in Tasmania who conducted the thankless task of conducting the data processing and analysis, without her assistance, this task would be all the more difficult