INDEPENDENT SOUTHERN NSW IRRIGATED CROP OPTIONS ANALYSIS

PREPARED BY

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1.0 EXECUTIVE SUMMARY

This independent report by Booth Associates was prepared for SunRice. Booth Associates have long-standing experience across all irrigated industries including in both the rice and cotton industries and do not favour one over the other, but rather advocate best business practice and believe diversity in crop systems is essential for Southern NSW.

Rice or Cotton? This question was rarely a consideration 10 to 15 years ago in Southern NSW, but it now sits at the forefront of many irrigators' minds when deciding upon summer cropping programs.

Water is the most limiting resource on most irrigation farms. How do you allocate this resource to produce the best result financially for your business?

SunRice commissioned this report to provide an impartial analysis of irrigated crop options for Southern NSW.

Rice is a technical crop to grow, especially for businesses achieving high yields. Compared to rice, cotton production has a higher technical requirement. Cotton has high growing costs creating a greater strain on cashflow, plus initial capital expenditure is significant. The high cost of cotton production necessitates scale to achieve worthy returns.

Assuming comparative business scale, the profit and return on capital for three farm systems modelled in this report is provided in Table 1.

Table 1: Farm System Analysis

Farm System	Murrumbidgee		Murray	
	Profit $K	Return on Capital	Profit $K	Return on Capital
Rice/winter crop	$263	4.1%	$82	3.1%
Cotton/winter crop	$222	3.0%	$41	1.3%
Maize/winter crop	$130	1.8%	$55	1.9%

Differences between Murrumbidgee and Murray outcomes arise in part due to assumed business sizes used for the analysis which is based on representative business scales.

A rice based system that includes prudent use of water to grow winter crops on residual moisture and supplementary spring irrigation will suit producers who grow up to 500ha of rice. Once the area of summer crop grown exceeds 500ha there is a greater likelihood of achieving better return on capital from a cotton based system. This comparison assumes sound management proficiency achieving solid yields of 12 tonne/ha for rice or 11 bales/ha of cotton in the Murrumbidgee Valley and 11 tonne/ha for rice or 10 bales/ha of cotton in the Murray Valley, both at average prices.

This report has compared cotton and rice farming systems as stand-alone operations. Rice can have a role to play in a cotton system as it has the capacity to supply organic matter and move soluble salts down the soil profile, improving soils with constraints such as sodicity.

2.0 INTRODUCTION

This report was prepared by Booth Associates, Agribusiness and Environmental Consultants founded in 1981 and based in Griffith. Booth Associates has extensive experience in rice, cotton and other irrigated enterprises common in southern NSW. Booth Associates do not favour one crop over another, but rather are advocates for best business practice.

This report was commissioned by SunRice to provide impartial answers to grower questions about the increasing popularity of cotton in Southern NSW.

More specifically, this report addresses:

- Cotton industry context;
- Cropping gross margins;
- Cashflow comparisons between crops;
- Return on capital;
- Sensitivity analysis; and
- Impact of business scale.

To create the appropriate models of typical farming systems, assumptions of farm size and water entitlements had to be made. The assumptions included:

- Representative farm business sizes as shown in Table 2;
- Proficient and efficient growing systems; and
- Industry standard growing costs.

Table 2: Representative Business Resources

	Area Cropped (ha)	General Security Entitlements (ML)	Average Allocation	Average Annual Allocation (ML)
Murrumbidgee	750	4,500	60%	2,700
Murray	500	1,200	70%	840

These base assumptions provided the fundamentals to analyse business returns and the effect of scale on farm business when concentrating on growing a chosen crop system well.

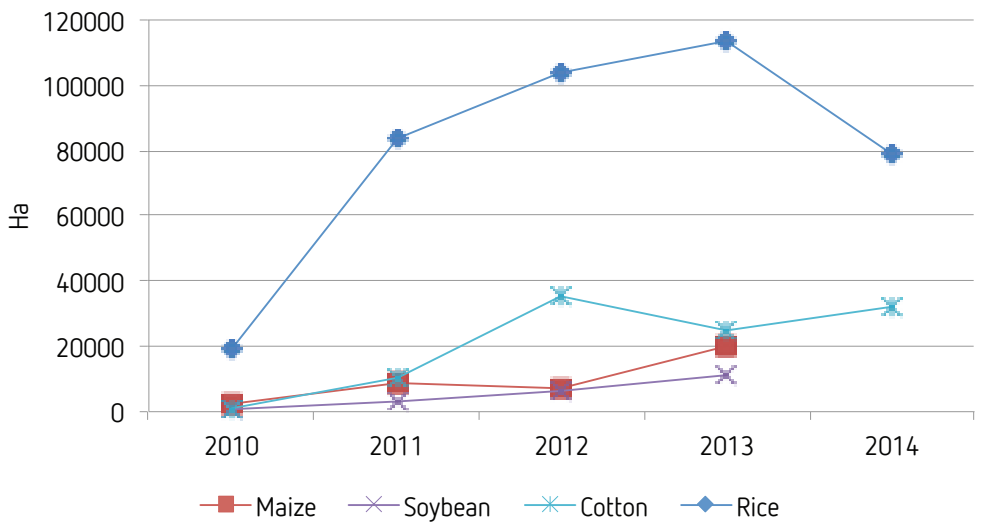
Implications of cashflow through a farm business, capital return and growth must be well understood for a healthy business.

3.0 COTTON INDUSTRY CONTEXT

The Southern NSW cotton industry is growing. Breeding technology has developed cotton varieties which are adapted to the September to April growing season experienced in the Lachlan, Murrumbidgee and Murray Valleys.

The area of cotton grown in Southern NSW has increased as growers transition from traditional rice and other row crop systems. Yield results have trended up and have provided comparative if not often better commercial results than traditional northern growing zones. Summer crop areas in Southern NSW are depicted in Graph 1.

Graph 1: Summer Crop Areas in Southern NSW



Source: NSW DPI crop reports, SunRice data and Cotton CRC Reports
Note: No data available for maize and soybeans for 2014

The data in Graph 1 shows:

- Crop areas recovering after irrigation allocations increased post-drought;
- Rice areas rebounding the fastest, but dropping away in 2014;
- The dominance of rice as the summer crop of choice; and
- Cotton area steadily rising.

The cotton industry has a reputation for being very open, and for sharing information and knowledge throughout the value chain. Cotton enjoys the benefits of being able to forward sell production up to three years ahead and the industry is supported by a well organised research, development and extension base.

The Southern NSW cotton industry expansion is evidenced by the construction of two new cotton gins underway in the Murrumbidgee to accompany the two cotton gins already in operation at Hillston and Whitton.

The decision to become a cotton grower must be understood in the context of implications to farm systems, adopting and understanding new technology, cashflow, equipment requirements, capital expenditure and overall balance sheet management.

Pertinent issues that must be considered as part of the cotton system include:

- Marketing;
- Production timelines and access to good agronomy;
- Working from the back to the front – ensuring harvest is organised in terms of contractors; and
- Ensuring ready access to cash to fund the high cost of production.

4.0 GROSS MARGINS AND FARM PROFITS

4.1 Introduction

Gross margins drive annual decisions, but not long term decisions. Long term decisions are driven by business benchmarks, such as return on capital. Technical benchmarks can be misleading.

Whilst gross margins can be very useful as a means to plan out a farm program, they have some definite limitations.

4.2 Crop Gross Margins

Gross margins for a range of crops common in Southern NSW are provided in Table 3.

Table 3: Crop Gross Margins

Crop	Crop Agronomics	Yield T/ha or B/ha	Price $/T, $/B or $/ML	Gross Margin $/Ha	Gross Margin $/ML
Rice – Murrumbidgee	Medium grain sod sown	12.0	$300	**$2,277**	**$163**
Cotton – Murrumbidgee	Roundup Ready & Bollgard	11.0	$475	**$2,645**	**$240**
Rice – Murray	Medium grain sod sown	11.0	$300	**$2,034**	**$156**
Cotton – Murray	Roundup Ready & Bollgard	10.0	$475	**$2,248**	**$225**
Wheat A	After rice	6.0	$250	$833	$416
Wheat B	Rotated with canola	6.0	$250	$786	$196
Wheat C	After cotton	4.0	$250	$430	$215
Canola A	After rice	3.0	$475	$792	$396
Canola B	Rotated with wheat	3.0	$475	$765	$191
Soybeans	Edible on beds	3.5	$600	$1,500	$188
Maize	Grit on beds	11.0	$300	$1,886	$189
Annual sale of allocation	Only dry wheat		$50		$50
Wheat – Dry		2.0	$250	$287	

As evidenced in Table 3, gross margins provide a direct comparison of returns possible on both a per hectare and per megalitre basis for differing crop options.

The bold figures indicate the returns possible from cotton and rice options. Cotton stands out as the best return per hectare and per megalitre.

SunRice is currently forecasting a final price for the 2014 crop of $320/Tonne. The rice gross margin at $320/Tonne (using the yield assumptions in Table 3) is $2,513/ha and $179/ML for the Murrumbidgee and $2,250/ha and $173/ML for the Murray. For comparison the cotton price at the time of writing this report was $400/bale. The cotton gross margin at $400/bale (using the yield assumptions in Table 3) is $1,829/ha and $166/ML for the Murrumbidgee and $1,506/ha and $151/ML for the Murray.

The drawbacks of gross margins are they ignore:

- Crops grown in rotation (eg wheat using residual moisture after rice);
- Cashflow and operating funds needed;
- Overheads and unallocated costs;
- Capital investment, equipment and renewal needs;
- Strategic planning;
- Risk; and
- Lifestyle and commercial satisfaction.

There is a need to keep within the fundamental parameters of a farm system. Irrigation allocations may vary and crop areas change accordingly but most farm layouts do not provide the flexibility to change readily between flood irrigated rice and row crops.

Gross margins need to be considered in the context of the full farm system.

4.3 System Gross Margins

A system gross margin takes into account the synergies of crops and rotations, and therefore presents a more accurate representation of what is achievable on your property and how best to use available resources.

The system analysis included within this report assumes the farm business scales depicted in Table 2.

The crop programs chosen for analysis include rice, cotton, maize and soybeans in rotation with winter crops as well as the sale of annual allocation on the temporary market. A summary of the systems gross margins for the assumed farm business scale is provided in Table 4.

Table 4: System Gross Margins

Scenario	Murrumbidgee System Gross Margin			Murray Gross Margins		
	Total $	$/Ha	$/ML	Total $	$/Ha	$/ML
Rice → wheat/canola → fallow → rice	$640,500	$697	$237	$271,044	$488	$323
Wheat 50% → canola 50%	544,800	$726	$202	$246,088	$492	$293
Soybeans → wheat/canola	575,100	$767	$213	$255,501	$511	$304
Maize → wheat/canola → fallow → Maize	625,800	$834	$232	$271,292	$484	$323
Cotton → wheat → fallow → cotton	734,600	$979	$272	$290,803	$510	$346
Sell annual allocation @ $50/ML	350,400	$467	$130	$185,611	$371	$221

Note: the sell annual allocation gross margin is inflated by returns from the dryland wheat grown across the whole farm

The analysis in Table 4 is based upon optimum areas grown using water and land resources as efficiently as practical in the industry.

As a focal point of analysis three systems are considered in more detail – rice, cotton and maize. The farm systems of rice, cotton and maize are apportioned as follows in Table 5.

Table 5: Crop Area Assumptions (ha)

Crop	Murrumbidgee (2,700ML)			Murray (840ML)		
	Rice System	Cotton System	Maize System	Rice System	Cotton System	Maize System
Canola - irrigated	70	-	80	22	-	24
Wheat - irrigated	100	210	115	34	70	36
Wheat - dryland	410	330	360	388	360	380
Rice	170	-	-	56	-	-
Cotton	-	210	-	-	70	-
Maize	-	-	195	-	0	60
Total	**750**	**750**	**750**	**500**	**500**	**500**

4.4 Farm Profit

To demonstrate whole farm profitability, a whole farm budget was prepared for the farm systems in Table 5 which is summarised in Tables 6 and 7. The whole farm budget provides due consideration of whole of business running costs including overheads, variable and unallocated costs, capital renewal and the capacity for debt servicing.

Table 6: Whole Farm Budget Outcomes - Murrumbidgee

		Murrumbidgee		
		Rice System	Cotton System	Maize System
Revenue	Summer Crop Revenue	$608K	$1,268K	$636K
	Winter Crop Revenue	$454K	$375K	$466K
	Other Revenue	$26K	$28K	$25K
	Total Revenue	**$1,088K**	**$1,670K – up 53%**	**$1,127K – up 4%**
Expenses	Allocated Expenses	$305K	$765K	$374K
	Unallocated Expenses, Staff and Overheads	$320K	$342K	$331K
	Finance/ Capital Renewal	$141K	$281K	$232K
	Management	$60K	$60K	$60K
	Total Expenses	**$825K**	**$1,448K – up 75%**	**$997K – up 21%**
	Profit	**$263K**	**$222K – down $51K**	**$130K – down $143K**

Table 7: Whole Farm Budget Outcomes – Murray

		Murray		
		Rice System	Cotton System	Maize System
Revenue	Summer Crop Revenue	$185K	$389K	$198K
	Winter Crop Revenue	$276K	$250K	$278K
	Other Revenue	$16K	$16K	$16K
	Total Revenue	**$477K**	**$655K – up 37%**	**$492K – up 3%**
Expenses	Allocated Expenses	$137K	$288K	$165K
	Unallocated Expenses, Staff and Overheads	$153K	$180K	$166K
	Finance/ Capital Renewal	$58K	$98K	$58K
	Management	$48K	$48K	$48K
	Total Expenses	**$396K**	**$614K – up 55%**	**$437K – up 10%**
	Profit	**$82K**	**$41K – down $41K**	**$55K – down $27K**

The analysis in Table 6 and Table 7 indicates, whilst the individual gross margin (Table 3) and system gross margin (Table 4) for cotton eclipses other crops, at the assumed farm scale, **that returns from cotton and maize are not as attractive as rice**.

The primary differences between systems include:

- The lower gross margin for rice (Table 3) is offset by reduced overall costs with full provision for whole of farm running costs;
- There is increased revenue from cotton, but there is reduced winter crop revenue in the cotton system. This is because there is very little available soil moisture after growing a cotton crop and often there are delays in sowing a winter crop such as wheat after an extended period of harvesting, mulching and pupae busting after cotton harvest. There are exceptions to this assumption, as good growers can produce high yielding wheat after cotton but this is often not possible due to time constraints. Alternatively winter crops can be sown relatively quickly after rice harvest (so long as the ground is trafficable);
- The residual moisture remaining after rice can be used effectively to kick-start a winter cropping program, and with well-timed spring irrigation solid yield results are achievable;
- Costs involved in the production of intensive row crops (cotton and to a lesser extent maize) are significantly higher than rice;
- Allocated and unallocated expenses are greater in cotton and maize systems as the crops are more expensive to grow;
- Overhead and management costs are the same between systems; and
- Finance and capital renewal expenses are commonly more in cotton and maize systems due to more technical row crop configurations and the need for more crop specific machinery (particularly in cotton).

4.5 Summary

Ultimately, any crop system grown well, with solid yield results will provide increased likelihood of profit. The system has to suit the management capabilities of the business, and also work within financial resources. The cashflow requirements of rice, cotton and maize farm systems are addressed in Section 5.0.

5.0 CASH FLOW COMPARISONS

5.1 Introduction

Cashflow is more important than a simple annual profit and loss analysis. The timing of cashflow drives the timing of what can be done, both when and how.

5.2 Cashflow Comparison

The calendar of operations and cashflow timing for rice and cotton are shown in Table 8.

Table 8: Crop Production Timelines

Cotton

Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Operations	Prepare Seed Bed			Plant	Grow Crop				Defoliate	Pick			Gin		Paid	
Cost $/Ha	$270			$120	$1,355				$125	$610			$985			
Cumulative cost				$390				$1,745	$1,870		$2,480			$3,465		
													Prepare Seed Bed			Plant

Rice

Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Operations	Prepare Seed Bed			Plant	Grow Crop				Drain & Harvest		Paid		Prepare Seed Bed			Plant
Cost $/Ha	$16			$70	$720				$520		1st	Opt Early				
Cumulative cost				$86				$806	$1,326		Payment	Payment				
													Prepare Seed Bed			Plant

Note: Maize is similar to rice

The farm profit analysis detailed in Section 4.4 was based on an assumed fixed land area and water entitlement. The resultant crop areas differ between rice and cotton (Table 5) due to the greater water use per hectare of rice.

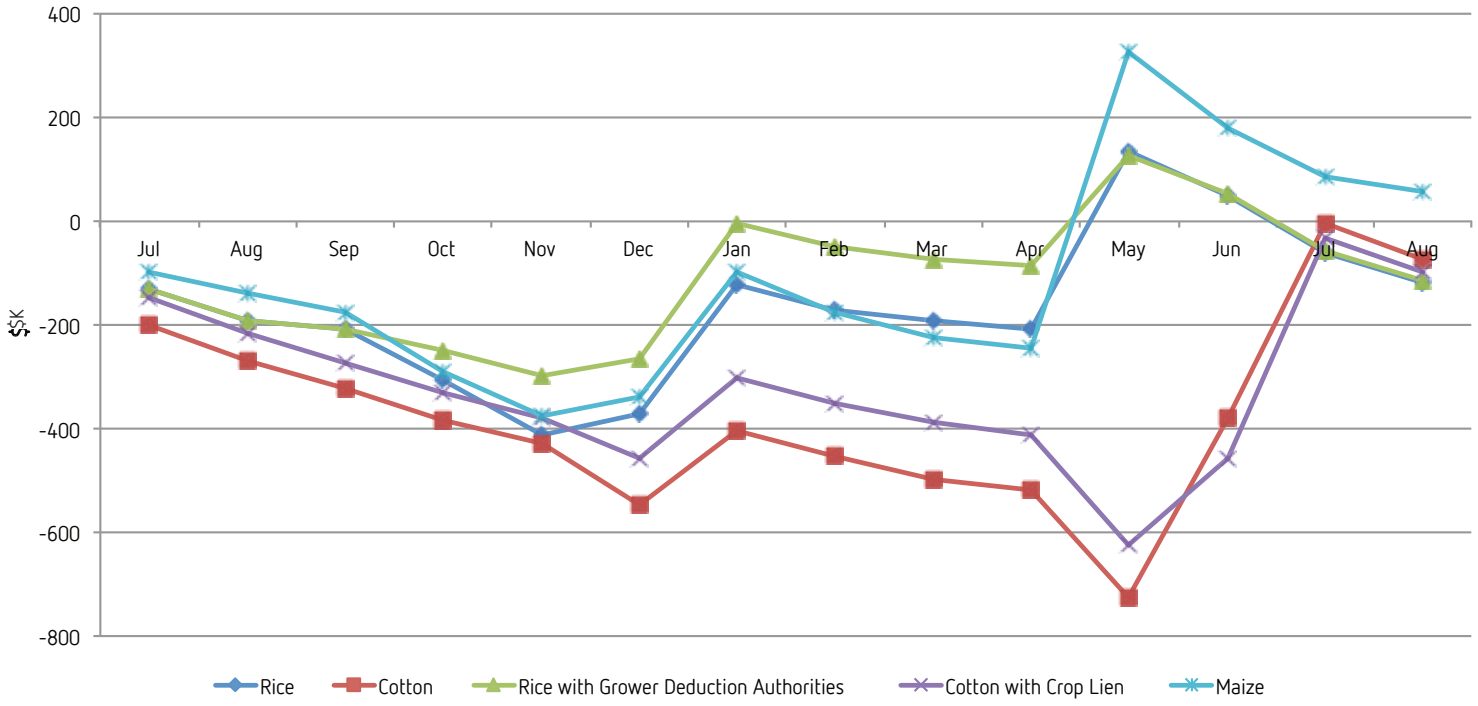
To compare the same crop area and provide a concise comparison of cashflow between rice, cotton and maize, the cashflow for a farm business growing 170ha of any of these three crops in rotation with winter crops was assessed. Note this assessment differs from the farm profit analysis in Sections 4.3 and 4.4 as summer crop areas are kept constant at 170ha to provide a direct comparison for identical crop areas. In this circumstance the results in Table 9 are achieved:

Table 9: 170ha Crop Comparison

	Cotton	Rice	Maize
Water required	1,870ML	2,380ML	1,700ML
Yield	11.0 B/ha	12.0 T/ha	11.0 T/ha
Gross Margin	$396,700	$343,000	$320,650
Gross Margin/ML	$240	$163	$189
Growing Costs	$519,100	$198,450	$240,350

Graph 2 provides a representation of the impact of growing each crop over a period of 14 months to capture all costs and revenue.

Graph 2: Cashflow Comparison



Note: Figures are in $K
Rice systems are based on traditional payment systems so all rice revenue is not shown in Graph 2

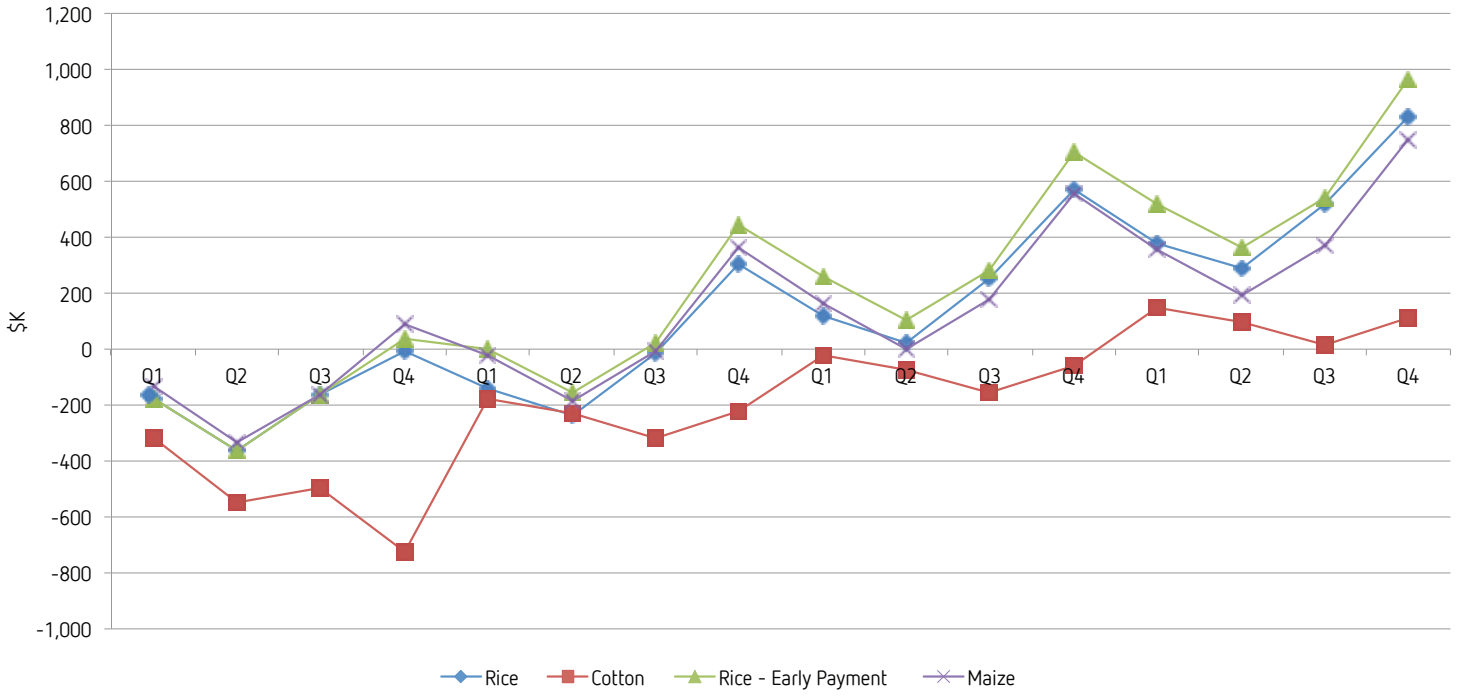
Graph 2 illustrates a full farm system in rotation with winter crop and importantly includes benchmarked allocated and unallocated costs, overhead and finance costs, together with appropriate management drawings and capital renewal costs. The growing costs of cotton are substantial and often by the time revenue from the cotton crop is realised there are already expenses incurred in planting a winter crop and preparing ground for the subsequent cotton crop.

The green line within Graph 2 represents the benefit Grower Deduction Authorities provide to reduce the burden of cashflow on rice growers. Concurrently, the purple line represents the use of a crop lien facility to help with cotton cashflow.

Cotton income can flow in relatively quickly once the crop is ginned. Rice payments are staggered, and therefore can provide some constraints to cashflow post-harvest. In particular this can be an issue where rice areas vary significantly year-to-year, say due to varying irrigation allocations. There are however, some early payment options available for rice. Maize payments are assumed to be 30 days post-harvest, hence the positive cashflow in Graph 2. Maize marketing can be complicated by credit risk, which is an issue across the grains industry. Prudent management of creditor risk is essential to avoid exposure to revenue loss for delivered grain.

When analysed over a four year timeframe, the 170ha summer crop comparison of cashflow (based on a quarterly apportionment – Q) is illustrated in Graph 3.

Graph 3: Cashflow Comparison – Over 4 Years



Note that the comparison in Graph 3 includes a "bad summer crop year" in Year 2 (summer crop revenue down by 25%) to demonstrate the resilience of each crop system. The option to take early rice payments for rice, as is currently available, is included in Graph 3.

The rice system at the assumed scale shows greater returns and resilience than maize and cotton. A poor year in the cotton system on this scale is difficult to recover from.

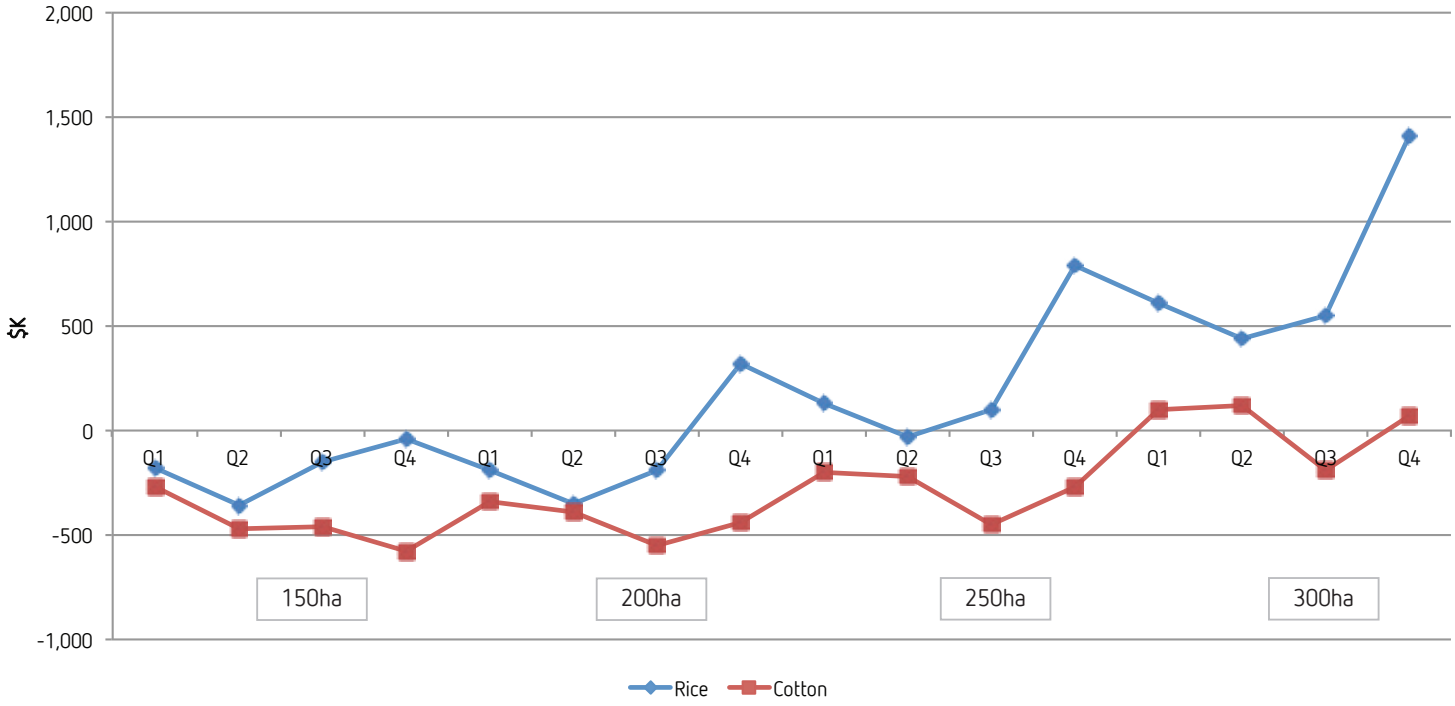
It is important to remember, this is a 170ha comparative analysis that assumes only cotton, rice or maize is grown as a summer crop. A full transition from say rice to cotton may not be practical, and initially an area of both crops may be produced. This may buffer the detrimental effects of poor seasons in one or the other crop. In the interests of reducing complexity this has not been considered in this analysis.

In situations where crop returns are suppressed due to combinations of low yield and price, and debt servicing costs are high for irrigation redevelopment and equipment finance, the business' capacity to cope can be significantly compromised.

5.3 Cashflow and Crop Expansion

Analysis of the implications of ramping up of crop area is illustrated in Graph 4.

Graph 4: Cashflow Comparison – Expanding Scale



The comparison in Graph 4 shows the impact on cashflow of expanding crop areas. In many instances the majority of profit in a year is reinvested to cover the growing costs of the expanded enterprise scale. Cotton systems begin to show merit when grown on a greater scale. Scale and business returns are addressed in Section 6.0.

6.0 RETURN ON CAPITAL, SENSITIVITY ANALYSIS AND SCALE ANALYSIS

6.1 Return on Capital

A healthy farm balance sheet is critical to business success and business resilience. If equity is stressed there can be constraints on cashflow to grow a crop and the capital expenditure requirements to set up a system well from the start can be inhibited.

Costs to convert from rice layout to row crop can be in the order of $500/ha to $1,000/ha, or greater subject to the extent of field supply and drainage requirements. Land value appreciates with irrigation development, but commonly no more than 50% of the money spent on capital expenditure associated with land development (lasering, irrigation structures, pivots, etc) goes to the balance sheet as an increase in assets. In situations where a high quality rice layout is converted to a row crop layout there is already significant sunk capital and the benefit of the irrigation redevelopment to the balance sheet may be as low as 10%. In other words, land values may only increase by a relatively small amount in such circumstances.

Plant and equipment requirements for row cropping and more specifically cotton are substantially higher than for rice systems. The specialised nature of cotton operations, most obviously harvest, means the equipment may be used on farm for cotton only, whereas a header can harvest a range of crops including rice.

To provide comparison of a typical balance sheet, the **750ha** Murrumbidgee and **500ha** Murray farm examples in Section 4.0 are once again used, and summarised in Table 10.

Table 10: Balance Sheet Comparison

Crop	Murrumbidgee			Murray		
	Rice System	Cotton System	Maize System	Rice System	Cotton System	Maize System
Assets	$6.50M	$7.34M	$7.14M	$2.63M	$3.08M	$2.91M
Liabilities	$0.45M	$0.90M	$0.70M	$0.15M	$0.28M	$0.15M
Net Worth	$6.05M	$6.44M	$6.44M	$2.48M	$2.80M	$2.76M

The difference between the systems within each valley relates to the type of irrigation development and plant and equipment.

When the rice, cotton and maize system returns in Table 6 are analysed in relation to their respective balance sheet positions, the subsequent return on capital results are provided in Table 11.

Table 11: Farm System Return on Capital

Return on Capital	Rice System	Cotton System	Maize System
Murrumbidgee – 750ha	4.1%	3.0%	1.8%
Murray – 500ha	3.1%	1.3%	1.9%

Note: Figures in Table 11 are EBIT yield (Earnings Before Interest and Tax)

6.2 Sensitivity Analysis

A sensitivity analysis was undertaken to test the resilience of each crop to yield and price. The sensitivity analysis is summarised in Table 12 and Table 13.

Table 12: Sensitivity Analysis - Murrumbidgee

Rice		Cotton		Maize	
10T/ha @ $280/T	= 2.1%	10 Bales/ha @ $450/B	= 1.0%	10T/ha @ $275/T	= 0.4%
12T/ha @ $300/T	= 4.1%	11 Bales/ha @ $475/B	= 3.0%	11T/ha @ $300/T	= 1.8%
13T/ha @ $325/T	= 5.6%	12.5 Bales/ha @ $500/B	= 5.9%	13T/ha @ $325/T	= 4.2%
12T/ha @ $280/T	= 3.4%	11 Bales/ha @ $450/B	= 2.3%	11T/ha @ $275/T	= 1.1%
12T/ha @ $320/T	= 4.7%	11 Bales/ha @ $500/B	= 3.8%	11T/ha @ $320/T	= 2.4%
12T/ha @ $350/T	= 5.6%	11 Bales/ha @ $525/B	= 4.6%	11T/ha @ $350/T	= 3.3%
10T/ha @ $300/T	= 2.6%	10 Bales/ha @ $475/B	= 1.7%	10T/ha @ $300/T	= 1.1%
12T/ha @ $300/T	= 4.1%	12 Bales/ha @ $475/B	= 4.3%	12T/ha @ $300/T	= 2.6%
13T/ha @ $300/T	= 4.8%	13 Bales/ha @ $475/B	= 5.6%	13T/ha @ $300/T	= 3.3%

Table 13: Sensitivity Analysis - Murray

Rice		Cotton		Maize	
9 T/ha @ $280/T	= 1.5%	9 Bales/ha @ $450/B	= -0.2%	10T/ha @ $275/T	= 1.8%
11T/ha @ $300/T	= 3.1%	10 Bales/ha @ $475/B	= 1.3%	11T/ha @ $300/T	= 1.9%
12T/ha @ $300/T	= 4.3%	11 Bales/ha @ $500/B	= 3.0%	13T/ha @ $325/T	= 3.7%
11T/ha @ $280/T	= 2.6%	10 Bales/ha @ $450/B	= 0.8%	11T/ha @ $275/T	= 1.3%
11T/ha @ $320/T	= 3.6%	10 Bales/ha @ $500/B	= 1.9%	11T/ha @ $320/T	= 2.3%
11T/ha @ $350/T	= 4.3%	10 Bales/ha @ $525/B	= 2.5%	11T/ha @ $350/T	= 3.0%
10T/ha @ $300/T	= 2.5%	9 Bales/ha @ $475/B	= 0.3%	10T/ha @ $300/T	= 1.3%
12T/ha @ $300/T	= 3.7%	11 Bales/ha @ $475/B	= 2.4%	12T/ha @ $300/T	= 2.4%
13T/ha @ $300/T	= 4.3%	12 Bales/ha @ $475/B	= 3.4%	13T/ha @ $300/T	= 3.0%

The sensitivity analysis in Table 12 and Table 13 shows:

- Rice is the least sensitive crop to a reduction in yield and price, and has significant upside; and
- Cotton is the most sensitive crop to a reduction in yield and price but has solid upside in the Murrumbidgee when yield and price are good.

6.3 Business Scale

Scale provides significant influence on business returns providing efficiencies with machinery and fixed operating costs.

A summary of the impact of farm scale on business returns for the Murrumbidgee is provided in Table 14. This analysis compares farms with the same land and water assets but shows the variations in crop area achievable with the water available.

Table 14: Impact of Scale on Return on Capital (ROC)

Farm Size		Rice	Cotton	Maize
500ha	Area	150ha	185ha	171ha
	ROC	**3.1%**	**2.7%**	**1.2%**
1,000ha	Area	250ha	308ha	286ha
	ROC	**4.3%**	**4.4%**	**2.6%**
1,500ha	Area	500ha	615ha	571ha
	ROC	**5.2%**	**5.6%**	**4.2%**
2,250ha	Area	750ha	923ha	857ha
	ROC	**5.7%**	**6.5%**	**4.6%**

The analysis in Table 14 indicates if there are sufficient land and water assets to grow 500ha of rice, cotton becomes increasingly attractive in providing better return on capital.

If long term rice prices were to average $320/Tonne the return on capital figures in Table 14 would increase by about 0.7%. That is, for 500ha of rice the return on capital would be 5.9% and at 750ha of rice the return on capital would be 6.4%.

7.0 SUMMARY

This report has assessed potential returns for rice, cotton and maize enterprises for the scale of summer cropping and business size typical of southern NSW. From this analysis it can be concluded rice will suit those growers who:

- Have a modest balance sheet;
- Have traditional irrigation layouts;
- Have heavy soils well suited to rice production; and
- Grow rice well and have typical industry scale.

Cotton will suit those growers who:

- Have a strong balance sheet;
- Have access to cash;
- Already have or are transitioning to row crop layouts;
- Sufficient channel supply capacity to meet peak crop demands;
- Have free draining soils; and
- Have increasing scale of business and need to maximise efficiencies of water use as the crop area expands.

There is a need to keep within the fundamental parameters of your farm system.

PREPARED BY

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