



Summer Crops

Gross Margin Analysis

September
2008

Introduction



Deciding which irrigated summer crop best suits your enterprise is always difficult. The problem is intensified when irrigation water is limited. For a few years now the most limiting resource within the summer irrigated system has been available irrigation water.

We have designed this gross margin analysis to be general in nature, in order to stimulate discussion and to highlight those areas within each of the gross margins where each crop has its positives and negatives. We urge you to initially read our analysis and findings, and then using our analysis as a template, put in your own data, thus allowing you to assess your summer crop options.

There has been much speculation about the soft commodity boom by associating high returns with these crops. However, as we pointed out in a similar publication in May this year, Comparing Irrigated Cotton and Wheat Gross Margins, even with elevated grain prices at the time, cotton still gave a better return per ha and per ML.

Why We Did Our Analysis

We have noticed when researching existing comparative gross margins, that a disconnect often exists between several important aspects, making it impossible to conduct a fair comparison between each of the commodities. Some use different variables such as pricing structure, cost of inputs, starting and ending dates; all of these making comparative analyses difficult. Within this analysis, we have attempted to be consistent across all commodities, in an effort to be fair, and to highlight the mechanics involved.

Be wary of using comparative gross margins that apply different input costs to the same activities on different crops, and alter the rules on whether to include or exclude out-of-crop operations such as fallow management or field preparation.

In preparing this comparative analysis we consulted widely with agronomists, merchants and growers who deal with all these commodities to ensure that our methodology and assumptions were robust.

The Global Environment

There has been much speculation about the “soft commodity boom” and the benefits and opportunities it offers to Australian farmers. We have seen increases in commodity prices across the board due to pressures from international markets and the drought within Australia. Many commodities are experiencing prices which are at all-time highs and look likely to remain at higher than average levels into the foreseeable future.

Coupled with this increase in commodity price has been an increase in input costs, especially fertiliser. This has a major effect on return from those crops which are big exporters of nutrients from the field in the form of delivered grain.

Cotton, which has traditionally been the stand out in terms of dollars returned when compared with other summer crops, has gone through an extended period where the price per bale has been depressed, due to world supply and a high Australian dollar. The forecast is however, for the world stocks of cotton to decline over the next couple of years and thus produce an increase in the cotton bale price.

However, like all other grains and oilseeds, cotton seed has enjoyed a high price recently, which is assisting in making cotton an attractive option.

Analysis Assumptions

As with any hypothetical analysis the assumptions undertaken within provide the foundation upon which the analysis is based. Although the assumptions we have used will not fit every situation perfectly, this analysis by design is general in nature and is designed to stimulate discussion. We encourage you to use our analysis as a template and conduct your own gross margin analysis with your own figures.

Irrigation Requirement

While a limited irrigation water scenario exists, determining the best return per ML becomes the most important output. Relating the gross margin back to a value per ML allows you to establish which commodity is going to give the best return from your most limiting resource.

Within this analysis we have used the most recent NSW DPI figures, which provide an estimate of the irrigation water required to adequately water these crops 4 years out of 5 years. (Table 1)

While these values are going to vary between regions, growers and seasons, they are a good starting point and, within reason, you could assume that usage rates will move up or down relative to Table 1. We encourage you to do your own analysis using your own water-use figures.

Table 1: Irrigation water requirements for summer crops. (NSW DPI figures, sourced from www.dpi.nsw.gov.au)

Commodity	Water requirement (4 years out of 5) per hectare
Cotton	7.25 ML*
Corn	7.15 ML
Soybeans	6.00 ML
Sunflowers	3.90 ML
Sorghum	3.80 ML

* Note: this figure includes water needed to adequately water 5% pigeon pea area under the Bollgard II® Resistance Management Plan.

Average Crop Yields

We have also tried to be as consistent as possible in yield prediction for each of the commodities. Where data from commercial trials was freely available, it has been used. In situations where it has been difficult to get independent results for some irrigated commodities, we have canvassed industry to ascertain average yields.



Average yields have been used within this analysis, but the potential to achieve above average yields and the extra costs associated with producing those incremental gains should also be factored in. Please refer to the sensitivity analysis to ascertain which crop's gross margin is more responsive to increases in yield.

Table 2: Average irrigated yields for summer crops

Commodity	Yield per hectare
Cotton	10.54 bale (Sicot 70BRF- 28 trials, over 2 seasons)
Corn	10 t (Industry est.)
Soybeans	3.5 t (Est. NSW DPI results and CSD Grains seed crops)
Sunflowers	2.5 t (Industry est.)
Sorghum	9 t (Industry est.)

Nitrogen Requirements

Fertiliser has been the input which has experienced the most dramatic price increase in the past couple of years. It has particular relevance within this analysis as grain crops export significant amounts of nitrogen from the paddock in the grain product.

The impact of the increase in fertiliser costs has been reflected in the variable costs of the coarse grains. In corn, sunflowers and sorghum, the greatest input cost is fertiliser, making up a third of the total variable costs. Cotton has a fertiliser component of 17%, and while considerable fertiliser is still required for the production of cotton, it is insulated within a higher variable cost framework.

Table 3: Fertiliser costs as a percentage of variable costs.

Commodity	Percentage of variable costs
Cotton	17%
Corn	33%
Soybeans	5%
Sunflowers	31%
Sorghum	37%

It is assumed that with adequate inoculation of the seed and nodulation, nitrogenous fertiliser will not be required for the production of the soybean crop.

A nitrogen budget has been prepared, based on constant assumptions across all commodities. Initially, there would be 50 units available N in the soil from mineralisation. Nitrogen uptake and removal rates are calculated using standard industry figures, and then an overriding nitrogen fertiliser application efficiency of 75%, for all nitrogen fertiliser applied. For most crops, the analysis allows for approximately 70% of nitrogen fertiliser to be applied pre plant with the remainder applied water run with irrigation water.

Table 4: Nitrogen budgeting for summer crop options

	Nitrogen Removed (kg/ha N)	Nitrogen Uptake (kg/ha N)	Soil Nitrogen	Application Efficiency	Total Nitrogen (kg/ha) needed from fertiliser
Cotton	Yield x 12.55	N removed x 1.67	- 50 units	75%	228units
10.54 b/ha	132	221			
Corn	Yield x protein % x 1.6	N removed x 1.6	- 50 units	75%	275 units
10 t/ha	160	256			
Sunflowers	Yield x 32	N removed x 1.7	- 50 units	75%	115 units
2.5 t/ha	80	136			
Sorghum	Yield x protein % x 1.6	N removed x 1.7	- 50 units	75%	260 units
9 t/ha	144	245			

Crop Delivery and End Date

Cost of delivery of produce from the farm is an important component of a gross margin analysis. For this exercise, cotton is taken as delivered to a gin, sorghum and soybeans as delivered to a local hub (town silo) and corn and sunflowers are taken from farm gate/storage. We believe that these would be the most common options used in contracts entered into with summer crops this season.

For the purpose of simplifying this analysis we have used similar starting and ending operations. Each crop's gross margin starts with fertiliser application and hilling up. The end point of each crop is crop stubble destruction post harvest. We have also included the pupae control operation into the cotton variable costs as it is a legal requirement.

Unfortunately, this approach does not cater for the possibility of opportunistic planting of a crop into a prepared seed bed, as is common with soybeans double cropped into wheat stubble or if further water becomes available later in the season or for fields which have been initially prepared for other summer crops.

Gross Margin Analysis



Commodity Price

At the time of publication the price of each commodity was taken as a spot price for autumn 2009 delivery. We have tried to be consistent across each of the commodities by using prices relating to entire production based contracts. While we understand that higher prices could be achieved by growers using whole-of-production contracts, we have decided to use whole of production contract prices to ensure all commodities are equally compared.

Table 5: Commodity prices at delivery point as of August 2008.

Commodity	Cotton	Corn	Soybeans	Sunflowers	Sorghum
Price	\$434 bale & \$320 seed (delivered gin), \$478 (ex gin for seed)	\$320 (on farm)	\$700 (local hub)	\$735 (on farm)	\$215 (local hub)

Note: Prices correct at time of publication. Prices are subject to change depending on market fluctuations and this may alter the outcomes within this analysis.

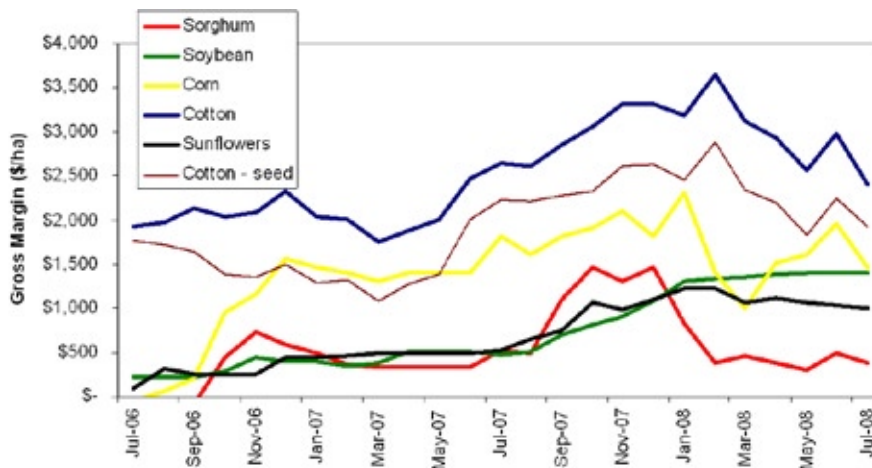
Price Fluctuation and Variability

Speculation about the "soft commodity boom" and its benefits for farmers has opened up opportunities for irrigators to diversify their operation and take advantage of high grain prices, or use on-farm stored water when it has been available, as we have seen evidenced this winter.

What this analysis has shown is that even with the high prices currently on offer for alternative crops, cotton production still provides an irrigator with a return equal to or better than alternative crops.

The higher prices in alternative crops have also brought with them price fluctuations - the ability to forward sell commodities at a known price is an advantage. This is something which has been developed through various means in Australian for most commodities now.

Figure 1: Comparative gross margin per hectare between various irrigated summer crops during the previous two seasons. (Commodity prices sourced from the Rural Weekly, Southern Edition published by Toowoomba Newspapers Pty. Ltd.)



In Figure 1 we have conducted a gross margin analysis based on historical price, going back to June 2006. Across all the commodities, there has been quite dramatic variability in returns during this time.

Of interest is the effects of the increase in grain commodity prices post September 2006, some of these commodities were showing a negative return. It should be noted however, that this analysis is using current (i.e. mid 2008) input costs, and some of these eg fertiliser, have a significant influence on the gross margin of these crops.

There are two lines representing cotton in Figure 1, the line brown line is representing the cotton gross margin if only the bale price is used for the calculation, the dark blue line is representing the accumulative gross margin when seed receipts post ginning are added. Please note the contribution that cotton seed has added to the overall gross margin of cotton.

Figure 2: Comparison between various irrigated summer crops, gross margin per hectare (left) and per megalitre (right).

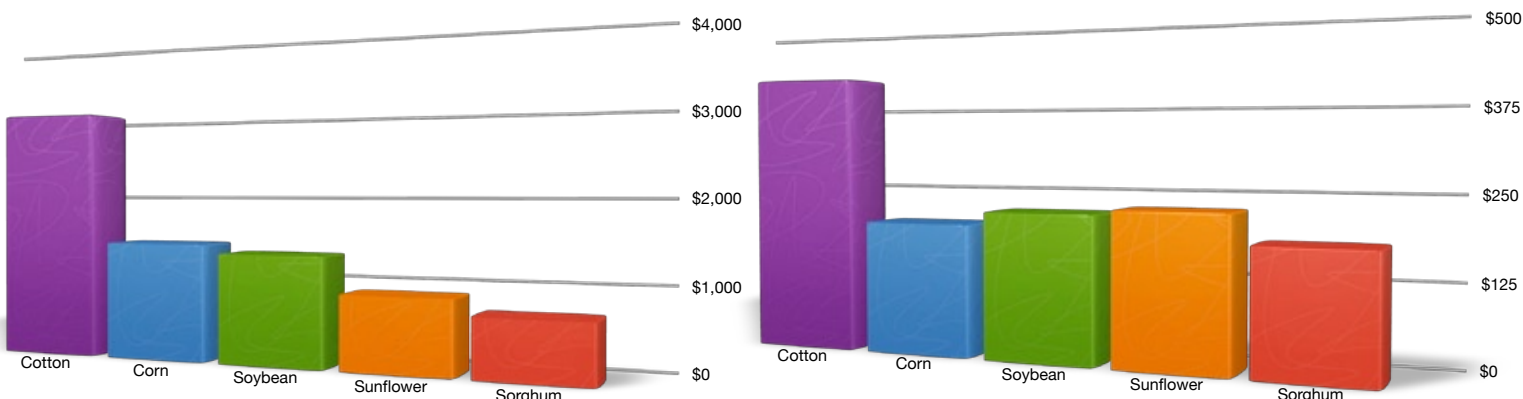




Table 6: Comparison between various irrigated summer crops gross margin per hectare and per megalitre.

Commodity	Cotton	Corn	Soybeans	Sunflowers	Sorghum
Gross Margin/ha	\$2,589	\$1,559	\$1,396	\$974	\$583
Gross Margin/ML	\$357	\$218	\$233	\$250	\$153

Variable Cost Breakdown

Obviously cotton has the highest variable costs but as shown, has the highest return. The influence of higher fertiliser prices has had an effect on sorghum, corn and sunflowers whose fertiliser inputs (including application) constitute up to a third of their variable costs. This makes these crops very vulnerable to further movements in fertiliser price.

Without itemising the calendar of operations line by line, we have included the variable cost breakdown for each of the crops. We have to the best of our ability tried to develop an operational program across all the crops which covers standard procedures and control of weed and insect pests.

Cotton

Cultivation	\$ 170.00
Sowing	\$ 114.00
Fertiliser and application	\$ 526.39
Herbicides and application	\$ 196.09
Insecticides and application	\$86.83
Irrigation	\$ 350.00
Defoliation and application	\$84.73
Contract harvesting	\$ 340.00
Haulage	\$84.32
Levies	\$44.00
Ginning charges	For Seed
License fees	\$ 390.00
Consultant	\$60.00
Refuge crop	\$28.10
Total	\$2474.45

Corn

Cultivation	\$100.00
Sowing	\$283.00
Fertiliser and Application	\$541.79
Herbicides and Application	\$91.25
Insecticides and Application	\$23.56
Irrigation	\$357.50
Contract Harvesting	\$141.00
Levies	\$22.40
Consultant	\$25.00
Total	\$1,585.50

Soybean (Bunya)

Cultivation	\$85.00
Sowing	\$164.40
Fertiliser and Application	\$51.20
Herbicides and Application	\$150.72
Insecticides and Application	\$51.66
Irrigation	\$300.00
Contract Harvesting	\$56.50
Haulage	\$140.00
Levies	\$24.50
Consultant	\$30.00
Total	\$1,053.98

Sunflowers

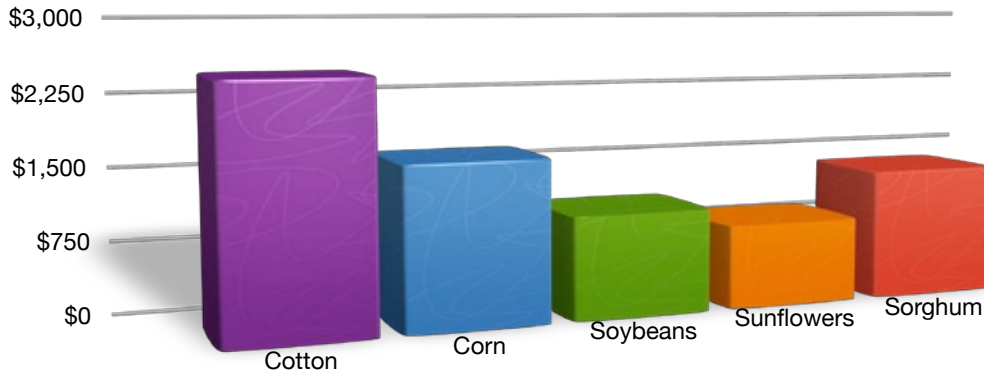
Cultivation	\$100.00
Sowing	\$114.73
Fertiliser and Application	\$259.21
Herbicides and Application	\$43.65
Insecticides and Application	\$45.35
Irrigation	\$195.00
Contract Harvesting	\$43.50
Levies	\$18.38
Consultant	\$25.00
Total	\$844.82

Sorghum

Cultivation	\$100.00
Sowing	\$72.50
Fertiliser and Application	\$503.01
Herbicides and Application	\$107.45
Insecticides and Application	\$26.60
Irrigation	\$190.00
Contract Harvesting	\$128.00
Haulage	\$180.00
Levies	\$19.35
Consultant	\$25.00
Total	\$ 1,351.91



Figure 3: Variable cost for various irrigated summer crops



Sensitivity analysis

Cotton

Per Hectare Analysis

Bale Price		\$400	\$450	\$500	\$550	\$400	\$450	\$500	\$550	\$400	\$450	\$500	\$550
Seed Price		\$300	\$300	\$300	\$300	\$350	\$350	\$350	\$350	\$400	\$400	\$400	\$400
Lint b/ha	Seed t/ha												
9	2.88	\$1,990	\$2,440	\$2,890	\$3,340	\$2,134	\$2,584	\$3,034	\$3,484	\$2,278	\$2,728	\$3,178	\$3,628
10	3.2	\$2,486	\$2,986	\$3,486	\$3,986	\$2,646	\$3,146	\$3,646	\$4,146	\$2,806	\$3,306	\$3,806	\$4,306
11	3.52	\$2,982	\$3,532	\$4,082	\$4,632	\$3,158	\$3,708	\$4,258	\$4,808	\$3,334	\$3,884	\$4,434	\$4,984
12	3.84	\$3,478	\$4,078	\$4,678	\$5,278	\$3,670	\$4,270	\$4,870	\$5,470	\$3,862	\$4,462	\$5,062	\$5,662
13	4.16	\$3,974	\$4,624	\$5,274	\$5,924	\$4,182	\$4,832	\$5,482	\$6,132	\$4,390	\$5,040	\$5,690	\$6,340

Per ML Analysis

Commodity Price		\$400	\$450	\$500	\$550	\$400	\$450	\$500	\$550	\$400	\$450	\$500	\$550
Seed Price		\$350	\$350	\$350	\$350	\$400	\$400	\$400	\$400	\$450	\$450	\$450	\$450
Lint b/ha	Seed t/ha												
9	2.88	\$274	\$336	\$399	\$461	\$294	\$356	\$418	\$480	\$314	\$376	\$438	\$500
10	3.2	\$343	\$412	\$481	\$550	\$365	\$434	\$503	\$572	\$387	\$456	\$525	\$594
11	3.52	\$411	\$487	\$563	\$639	\$436	\$511	\$587	\$663	\$460	\$536	\$612	\$687
12	3.84	\$480	\$562	\$645	\$728	\$506	\$589	\$672	\$754	\$533	\$615	\$698	\$781
13	4.16	\$548	\$638	\$727	\$817	\$577	\$666	\$756	\$846	\$605	\$695	\$785	\$874

Corn

Price	\$250	\$275	\$300	\$325	\$350	\$375
Yield t/ha						
8	\$416	\$616	\$816	\$1,016	\$1,216	\$1,416
9	\$666	\$891	\$1,116	\$1,341	\$1,566	\$1,791
10	\$916	\$1,166	\$1,416	\$1,666	\$1,916	\$2,166
11	\$1,166	\$1,441	\$1,716	\$1,991	\$2,266	\$2,541
12	\$1,416	\$1,716	\$2,016	\$2,316	\$2,616	\$2,916

Per ML/ha Analysis

Price	\$250	\$275	\$300	\$325	\$350	\$375
Yield t/ha						
8	\$58	\$86	\$114	\$142	\$170	\$198
9	\$93	\$125	\$156	\$188	\$219	\$250
10	\$128	\$163	\$198	\$233	\$268	\$303
11	\$163	\$202	\$240	\$278	\$317	\$355
12	\$198	\$240	\$282	\$324	\$366	\$408

Soybean

Price	\$600	\$650	\$700	\$750	\$800
Yield t/ha					
2.5	\$446	\$571	\$696	\$821	\$946
3	\$746	\$896	\$1,046	\$1,196	\$1,346
3.5	\$1,046	\$1,221	\$1,396	\$1,571	\$1,746
4	\$1,346	\$1,546	\$1,746	\$1,946	\$2,146
4.5	\$1,646	\$1,871	\$2,096	\$2,321	\$2,546

Per ML/ha Analysis

Price	\$600	\$650	\$700	\$750	\$800
Yield t/ha					
2.5	\$74	\$95	\$116	\$137	\$158
3	\$124	\$149	\$174	\$199	\$224
3.5	\$174	\$204	\$233	\$262	\$291
4	\$224	\$258	\$291	\$324	\$358
4.5	\$274	\$312	\$349	\$387	\$424



Sunflowers

Price	\$650	\$700	\$750	\$800	\$850	\$900
Yield t/ha						
2.25	\$599	\$711	\$824	\$936	\$1,049	\$1,161
2.5	\$761	\$886	\$1,011	\$1,136	\$1,261	\$1,386
2.75	\$924	\$1,061	\$1,199	\$1,336	\$1,474	\$1,611
3	\$1,086	\$1,236	\$1,386	\$1,536	\$1,686	\$1,836
3.25	\$1,249	\$1,411	\$1,574	\$1,736	\$1,899	\$2,061

Per ML/ha Analysis

Price	\$650	\$700	\$750	\$800	\$850	\$900
Yield t/ha						
2.25	\$150	\$178	\$206	\$234	\$262	\$290
2.5	\$190	\$222	\$253	\$284	\$315	\$347
2.75	\$231	\$265	\$300	\$334	\$368	\$403
3	\$272	\$309	\$347	\$384	\$422	\$459
3.25	\$312	\$353	\$393	\$434	\$475	\$515

Sorghum

Price	\$175	\$200	\$225	\$250	\$275	\$300
Yield t/ha						
6	\$(302)	\$(152)	\$(2)	\$148	\$298	\$448
7	\$(127)	\$48	\$223	\$398	\$573	\$748
8	\$48	\$248	\$448	\$648	\$848	\$1,048
9	\$223	\$448	\$673	\$898	\$1,123	\$1,348
10	\$398	\$648	\$898	\$1,148	\$1,398	\$1,648

Per ML/ha Analysis

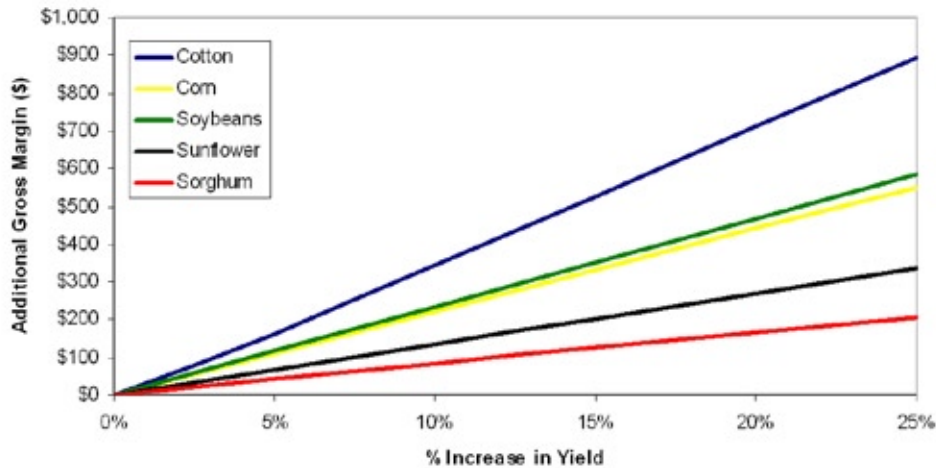
Price	\$175	\$200	\$225	\$250	\$275	\$300
Yield t/ha						
6	\$(79)	\$(40)	\$(1)	\$39	\$78	\$118
7	\$(33)	\$13	\$59	\$105	\$151	\$197
8	\$13	\$65	\$118	\$171	\$223	\$276
9	\$59	\$118	\$177	\$236	\$296	\$355
10	\$105	\$171	\$236	\$302	\$368	\$434

The yield figures we have used are an average value and the sensitivity analysis shows the effects that changes in yield and commodity price have on each of the gross margins.

However, increasing yield does create a situation where some components of the variable cost structure may rise, i.e. ginning cost. Figure 4 below takes into account the increases in variable costs and also increase in returns and the effect obtaining or chasing higher yields has on the gross margin.

While cotton is the most responsive, our analysis shows very similar responses from both corn and soybean to increases in yield.

Figure 4: Price and yield increase responsiveness of various irrigated summer crops



What does this mean to you, the irrigator?

We have conducted a simple "back of the envelope" calculation on the comparative performance of each commodity using the figures presented earlier in this paper. We have based these calculations on the most limiting resource for many growers this season, irrigation water. We have assumed that there is 1000 ML of irrigation water available for the crop.

Table 17: Summer crop gross margin analysis based on 1000 ML of irrigation water available

	Cotton	Corn	Soybeans	Sunflowers	Sorghum
Grown ha	138	140	167	256	263
Outlay \$	\$341,304	\$229,441	\$175,663	\$221,507	\$355,843
Average yield	10.54 bale	10 t	3.5 t	2.5 t	9 t
Return \$	\$698,402	\$447,552	\$408,333	\$471,154	\$509,211
Gross margin	\$357,098	\$218,112	\$232,670	\$249,647	\$153,637

There are two things which stand out in this analysis. Firstly, although the area grown to cotton is the smallest amongst the commodity group it returns the most dollars to the enterprise. In a limited resource scenario the focus is on obtaining the most return from that resource, as it drives profitability.

Secondly, the rate of return on investment for cotton is similar to the other commodities at current price levels. Obviously this is going to change



with commodity prices fluctuating as seasonal influences progress. However, the ratio between outlay and return is quite similar across most of the commodities within this analysis. Therefore for the same relative risk, you are returning substantially more money from a cotton system. For example, the growing costs for 138 ha of cotton are very similar to the growing costs of 263 ha of sorghum. However, the cotton system returns \$203,461 more to the farm enterprise than the increase planted area of sorghum.

Another way of looking at this is to work out the break even yields which need to be achieved across the commodities. For this analysis the breakeven yield is structured as a percentage of the average yield. This ratio is going to change depending on expected yield, variable costs and commodity price fluctuations. However the desired outcome would be to have a smaller percentage value as the risk of not making a return is reduced.

Table 18: Break even yield expressed as a percentage of the average yield.

Commodity	Risk Profile
Cotton	49%
Corn	51%
Soybeans	43%
Sunflowers	47%
Sorghum	70%

From this analysis, soybean is the commodity with the lowest risk of no return, representing a high commodity price and low variable costs. Conversely sorghum has the highest risk of returning a loss. Cotton, corn & sunflowers have a risk profile approximately half that of the average yields for these commodities.

Conclusions

Irrigation Water

Regardless of the amount of water available, it makes logical and economic sense to use that limited resource on the commodity which is going to return the most per ML, which this analysis determines is cotton.

Inputs

It is important to factor in the higher price of fertiliser inputs, which in some of the gross margins make up a third of the variable costs. Additional increases in fertiliser prices are going to impact on that gross margin more than others where fertiliser inputs are a lower proportion of variable cost.

Commodity Price

Price stability and the ability to forward market are now available to many commodities through various programs. Where this is not available, as we have seen with crops like sorghum over the past season, there can be a considerable price reduction between time of planting and delivery.

Yield

We have used average yields in this analysis; however, if yield is increased, it is important to factor in what effect these higher yield levels will have on the gross margin and return. Achieving higher yields is the aim; competing commodities are going to respond at different levels to increases in yield. Growers and consultants firstly must factor the ability to obtain above average yields within each commodity and secondly determine which commodity gives the best return for the extra effort involved in achieving these higher yields.

Our analysis has shown cotton still to be the most attractive option available to growers on a per hectare and ML basis. We encourage you to use our gross margin as a template for your own scenario. We believe it provides an even and fair account of the range of commodities available to growers as part of an irrigated summer cropping program.

Appendix

Calendar of Operations - Cotton

Month	Operation	Description	Notes	Rate/ha	Units	Cost	Costs/ha
April	Fertiliser	P&K Blend		100	kg	\$ 1.20	\$ 120.00
		Spreader	with above	1	ha	\$ 10.00	\$ 10.00
	Cultivation	Listering		1	ha	\$ 45.00	\$ 45.00
	Fertiliser	Anhydrous Ammonia	with above	194.5	kg	\$ 1.40	\$ 271.55
July	Herbicide	Glyphosate		1.5	L	\$ 15.60	\$ 23.40
		Surpass		1.4	L	\$ 5.10	\$ 7.14
		Application	with above	1	ha	\$ 9.00	\$ 9.00
September	Herbicide	Glyphosate		1	L	\$ 15.60	\$ 15.60
		Application	with above	1	ha	\$ 9.00	\$ 9.00
	Cultivation	Cultipacker		1	ha	\$ 15.00	\$ 15.00
October	Planting	Planting Seed		12	kg	\$ 7.00	\$ 84.00
	Insecticide	Lorsban		0.5	L	\$ 9.00	\$ 4.50
		Sowing	with above	1	ha	\$ 30.00	\$ 30.00
	Consultant	Consultant		12	ha	\$ 5.00	\$ 60.00
	Irrigation	Water up		1.5	ML	\$ 50.00	\$ 75.00
November	Herbicide	Roundup Ready Herbicide		1.5	kg	\$ 21.91	\$ 32.87
		Application	with above	1	ha	\$ 9.00	\$ 9.00
December	Herbicide	Roundup Ready Herbicide		1.5	kg	\$ 21.91	\$ 32.87
		Application	with above	1	ha	\$ 9.00	\$ 9.00
	Cultivation	Excel		1	ha	\$ 25.00	\$ 25.00
	Irrigation	First incrop		0.92	ML	\$ 50.00	\$ 45.83
	Fertiliser	Urea	with above	49.5	kg	\$ 0.84	\$ 41.61
	Herbicide	Diuron	80% Band	1.5	kg	\$ 10.75	\$ 12.90
		Gesagard	80% Band	2.2	L	\$ 13.25	\$ 23.32
January		Application	with above	1	ha	\$ 12.00	\$ 12.00
	Insecticide	Fipronil	80% Band	0.06	L	\$ 325.00	\$ 15.60
		Application	with above	1	ha	\$ 9.00	\$ 9.00
	Irrigation	Second incrop		0.92	ML	\$ 50.00	\$ 45.83
	Fertiliser	Urea	with above	49.5	kg	\$ 0.84	\$ 41.61
	Licence	BollgardII®		1	ha	\$ 315.00	\$ 315.00
		Roundup Ready Flex®		1	ha	\$ 75.00	\$ 75.00
	Irrigation	Third incrop		0.92	ML	\$ 50.00	\$ 45.83
February	Fertiliser	Urea	with above	49.5	kg	\$ 0.84	\$ 41.61
	Irrigation	Fourth incrop		0.92	ML	\$ 50.00	\$ 45.83
	Insecticide	Fipronil		0.06	L	\$ 325.00	\$ 19.50
		Application	with above	1	ha	\$ 15.00	\$ 15.00
	Irrigation	Fifth incrop		0.92	ML	\$ 50.00	\$ 45.83
	Insecticide	Steward		0.07	L	\$ 59.00	\$ 4.13
March		Application	with above	1	ha	\$ 15.00	\$ 15.00
	Irrigation	Sixth incrop		0.92	ML	\$ 50.00	\$ 45.83
	Defoliation	Dropp Liquid		0.1	L	\$ 77.50	\$ 7.75
		Prep		0.7	L	\$ 8.50	\$ 5.95
		Spray oil		2	L	\$ 2.15	\$ 4.30
	Insecticide	Dimethoate		0.5	L	\$ 8.20	\$ 4.10
		Application	with above	1	ha	\$ 15.00	\$ 15.00
	Defoliation	Dropp Liquid		0.07	L	\$ 77.50	\$ 5.43
		Prep		2	L	\$ 8.50	\$ 17.00
April		Spray Oil		2	L	\$ 2.15	\$ 4.30
		Application	with above	1	ha	\$ 25.00	\$ 25.00
	Harvest	Contract Picking		1	ha	\$ 340.00	\$ 340.00
	Cartage	Contract Cartage		1		\$ 84.32	\$ 84.32
May	Ginning	Contract Ginning	For Seed				
	Levies						\$ 44.00
	Refuge Crop	Pigeon Peas @ 5%		1		\$ 28.10	\$ 28.10
	Mulching & Root cut	Contract		1	ha	\$ 50.00	\$ 50.00
	Pupae Control			1	ha	\$ 35.00	\$ 35.00
Variable costs							\$ 2,474.45
Lint				10.54	bale	\$ 480.40	\$ 5,063.42
Gross margin							\$ 2,588.97
Gross margin per ML							\$ 357.10

Calendar of Operations - Corn

Month	Operation	Description	Notes	Rate/ha	Units	Cost	Cost/ha
September	Fertiliser	Anhydrous		234.5	kg	\$1.40	\$327.32
	Cultivation	Hill Up	with above		1 ha	\$45.00	\$45.00
	Cultivation	Cultipacker			1 ha	\$15.00	\$15.00
October	Irrigation	Pre water		1.5	ML	\$50.00	\$75.00
		Planting Seed		23	kg	\$11.00	\$253.00
	Fertiliser	Starter Z		50	kg	\$1.28	\$64.00
	Insecticide	Lorsban		0.5	L	\$9.00	\$4.50
	Sowing	Operation	with above		1 ha	\$30.00	\$30.00
	Herbicide	Dual		1.5	L	\$23.00	\$34.50
		Atrazine	with above	2.5	kg	\$9.50	\$23.75
		Application	with above		1 ha	\$9.00	\$9.00
	Consultant			5	ha	\$5.00	\$25.00
November	Cultivation			1	ha	\$25.00	\$25.00
December	Irrigation			0.94	ML	\$50.00	\$47.08
	Herbicide	Starane		0.75	L	\$20.00	\$15.00
		Application			1 ha	\$9.00	\$9.00
	Irrigation			0.94	ML	\$50.00	\$47.08
	Fertiliser	Urea – with Irrigation	with above	89.6	kg	\$0.84	\$75.23
January	Irrigation			0.94	ML	\$50.00	\$47.08
	Fertiliser	Urea – with Irrigation	with above	89.6	kg	\$0.84	\$75.23
	Insecticide	Decis		0.7	L	\$5.80	\$4.06
		Application	with above		1 ha	\$15.00	\$15.00
	Irrigation			0.94	ML	\$50.00	\$47.08
February	Irrigation			0.94	ML	\$50.00	\$47.08
	Irrigation			0.94	ML	\$50.00	\$47.08
April	Harvest	Contract		1	ha	\$130.00	\$130.00
		Chaser Bin		1	ha	\$11.00	\$11.00
	Levy			0.7%			\$22.40
May	Slashing				ha	\$15.00	\$15.00
Variable Costs							\$1,585.50
Todays Spot Price				10	t	\$320.00	\$3,200.00
Gross margin							\$1,614.50
Gross margin per ML							\$225.80

Calendar of Operations - Sorghum

Month	Operation	Description	Notes	Rate	Units	Cost	Cost/ha
Sep	Fertiliser	Anhydrous		221.7	kg	\$1.40	\$309.53
	Cultivation	Listering	with above		1 ha	\$45.00	\$45.00
	Cultivate	Cultipacker			1 ha	\$15.00	\$15.00
Nov	Herbicide	Dual		1.5	L	\$23.00	\$34.50
		Atrazine	with above	2.5	kg	\$9.50	\$23.75
		Application	with above		1 ha	\$9.00	\$9.00
Nov	Planting	Planting Seed		5	kg	\$8.50	\$42.50
	Insecticide	Lorsban	with above	0.5	L	\$9.00	\$4.50
Nov		Sowing	with above		1 ha	\$30.00	\$30.00
	Fertiliser	Starter Z	with above	40	kg	\$1.28	\$51.20
	Consultant	Consultant		5	ha	\$5.00	\$25.00
Dec	Irrigation	Water up		1.5	ML	\$50.00	\$75.00
Jan	Cultivation	Excel		1	ha	\$25.00	\$25.00
Jan	Irrigation	First lin-crop		1.15	ML	\$50.00	\$57.50
		Urea – with Irrigation	with above	84.7	kg	\$0.84	\$71.14
	Irrigation	Second In-crop		1.15	ML	\$50.00	\$57.50
Feb		Urea – with Irrigation	with above	84.7	kg	\$0.84	\$71.14
	Insecticide	NPV		0.25	L	\$52.40	\$13.10
		Application	with above		1 ha	\$9.00	\$9.00
April	Defoliation	Glyphosate		2	L	\$15.60	\$31.20
		Application	with above		1 ha	\$9.00	\$9.00
April	Harvest	Contract		1	t	\$117.00	\$117.00
		Chaser Bin	with above		1 ha	\$11.00	\$11.00
	Cartage			1	t	\$180.00	\$180.00
	Grain Corp. levy			1%	ha		\$19.35
May	Slashing			1	ha	\$15.00	\$15.00
Variable Costs							\$1,351.91
Todays Spot Price (elders web page)				9	t	\$215.00	\$1,935.00
Gross margin							\$583.09
Gross margin per ML							\$153.44

Calendar of Operations - Soybeans

Month	Operation	Description	Notes	Rate	Unit	Cost	Cost/ha				
							Bunya	Fraser	Oakey	Soya A6785	
November	Cultivation	Furrowing		1	ha	\$45.00	\$45.00	\$45.00	\$45.00	\$45.00	
December	Irrigation	Pre irrigate		1.5	ML	\$50.00	\$75.00	\$75.00	\$75.00	\$75.00	
	Cultivation	Cultipacker		1	ha	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	
	Herbicide	Broadstrike		0.025	kg	\$670.00	\$16.75	\$16.75	\$16.75	\$16.75	
	Application		with above	1	ha	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	
	Planting	Planting seed	Variety	Seeds/kg	Seed/ha						
			Bunya	4000	87.5	\$1.50	\$131.25				
			Fraser	6000	58	\$1.50		\$87.00			
			Oakey	12000	30	\$1.50			\$45.00		
			Soya A6785	6900	50	\$1.50				\$75.00	
		Innoculant		with above	0.0875	L	\$36.00	\$3.15	\$2.09	\$1.08	\$1.80
		Fertiliser	Starter Z	with above	40	kg	\$1.28	\$51.20	\$51.20	\$51.20	\$51.20
		Herbicide	Stomp	30% band	3	L	\$11.55	\$34.65	\$34.65	\$34.65	\$34.65
		Sowing	with above	1	ha	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	
	Consultant	Consultant		6	ha	\$5.00	\$30.00	\$30.00	\$30.00	\$30.00	
January	Cultivation	Excel		1	ha	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	
February	Irrigation	First In-crop		0.90	ML	\$50.00	\$45.00	\$45.00	\$45.00	\$45.00	
	Herbicide	Basagran, Shield	80% Band	2	L	\$37.25	\$59.60	\$59.60	\$59.60	\$59.60	
		Roundup CT, Shield	with above	1.5	L	\$15.60	\$18.72	\$18.72	\$18.72	\$18.72	
		Application	with above	1	ha	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	
	Irrigation	Second In-crop		0.90	ML	\$50.00	\$45.00	\$45.00	\$45.00	\$45.00	
	Irrigation	Third In-crop		0.90	ML	\$50.00	\$45.00	\$45.00	\$45.00	\$45.00	
	Insecticide	Steward	Ground	0.4	L	\$59.00	\$23.60	\$23.60	\$23.60	\$23.60	
	Application	with above	1	ha	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00		
March	Irrigation	Fourth In-crop		0.90	ML	\$50.00	\$45.00	\$45.00	\$45.00	\$45.00	
	Irrigation	Fifth In-crop		0.90	ML	\$50.00	\$45.00	\$45.00	\$45.00	\$45.00	
	Insecticide	Decis	Air	0.7	L	\$5.80	\$4.06	\$4.06	\$4.06	\$4.06	
		Application	with above	1	ha	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	
April	Harvest			1	t	\$13.00	\$45.50	\$45.50	\$39.00	\$39.00	
	Chaser Bin		with above	1	ha	\$11.00	\$11.00	\$11.00	\$11.00	\$11.00	
	Transport			1	t	\$20.00	\$70.00	\$70.00	\$60.00	\$60.00	
	Grading	Scalping		1	t	\$20.00	\$70.00	\$70.00	\$60.00	\$60.00	
	Levy			1%			\$24.50	\$24.50	\$21.00	\$21.00	
Variable Costs							\$1,053.98	\$1,008.67	\$935.66	\$966.38	
Relative Yield							3.5t		3t		
CSD Grains' Price						\$700.00	\$2,450.00	\$2,450.00	\$2,100.00	\$2,100.00	
Gross margin							\$1,396.02	\$1,441.33	\$1,164.34	\$1,133.62	
Gross margin per ML							\$232.67	\$240.22	\$194.06	\$188.94	

Calendar of Operations - Sunflowers

Month	Operation	Description	Notes	Rate/ha	Units	Cost	Cost/ha	
September	Fertiliser	Anhydrous		139.8	kg	\$1.40	\$195.21	
	Cultivation	Listering	with above	1	ha	\$45.00	\$45.00	
	Cultivation	Cultipacker		1	ha	\$15.00	\$15.00	
	Irrigation	Pre irrigate		1.5	ML	\$50.00	\$75.00	
December		Planting Seed		5.6	kg	\$15.13	\$84.73	
	Fertiliser	Starter Z		50	kg	\$1.28	\$64.00	
	Insecticide	Lorsban		0.75	L	\$9.00	\$6.75	
	Sowing	Operation	with above	1	ha	\$30.00	\$30.00	
	Herbicide	Stomp		3	L	\$11.55	\$34.65	
		Application	with above	1	ha	\$9.00	\$9.00	
	Consultant	Consultant		5	ha	\$5.00	\$25.00	
January	Cultivation	Excel		1	ha	\$25.00	\$25.00	
	Irrigation	First In-crop		0.80	ML	\$50.00	\$40.00	
February	Irrigation	Second In-crop		0.80	ML	\$50.00	\$40.00	
	Insecticide	Steward		0.4	L	\$59.00	\$23.60	
		Application	with above	1	ha	\$15.00	\$15.00	
March	Irrigation	Third In-crop		0.80	ML	\$50.00	\$40.00	
	Insecticide	Decis		0.7	L	\$5.80	\$4.06	
		Application	with above	1	ha	\$15.00	\$15.00	
April	Harvest	Contract		1	t	\$32.50	\$32.50	
		Chaser Bin		1	ha	\$11.00	\$11.00	
	Levy			1.00%			\$18.38	
May	Slashing			1	ha	\$15.00	\$15.00	
Variable Costs								\$863.88
Today's Spot Price						2.5 t	\$735.00	\$1,837.50
Gross margin								\$973.62
Gross margin per ML								\$249.65

Further Information

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