

## ORC Evidence Requirements for the Cotton Industry

The Cotton Industry Owner Reimbursement Costs (ORC) Evidence Framework only applies to commercial Owners from the Cotton Industry.

ORCs for the Cotton Industry are calculated using the formula for Annual Broad Acre Crops (*schedule 6, part 4.4.11 of the Emergency Plant Pest Response Deed, 22 August 2018*). This formula is: **ORC = (A – B) + C + D + E – F + G.**

A definition for each component of this formula is provided in the following table.

Regional differences will need to be taken into account throughout the Evidence Framework.

The following statement taken from the *Guidelines for owner reimbursement costs under the plant pest deed* (Centre for International Economics, June 2004 available at [planthealthaustralia.com.au/biosecurity/incursion-management/owner-reimbursement-costs](http://planthealthaustralia.com.au/biosecurity/incursion-management/owner-reimbursement-costs)) provides clarity in relation to framework elements E and F; specifically, that unless a bare fallow is required under the Response Plan (i.e. no alternative crop can be grown), ORCs will only apply for the year in which the cotton Crop is destroyed. Any profits earned from an alternative crop grown in the year of cotton destruction are to be deducted from the ORC under element F.

*“To avoid double counting, where the land on which the Crop is destroyed is allowed to be used for other purposes during the same growing season (grazing, potato production etc), the net profits derived from such enterprises in the current season would be deducted from Owner Reimbursement Costs.*

*Where the Crop destroyed cannot be grown on the same land the following year, but there is no requirement to fallow the land - the land can be used for other purposes (for example, growing another Crop or some other use of the owner’s choice), no Owner Reimbursement Costs would be payable for the second year. In many cases alternative Crops would be grown anyway as part of the normal farming rotation management system.”*

### Key terms used in this evidence framework

Term	Definition
Authorised Person(s)	The Authorised Person is also known as the ORC Assessor. The Authorised Person should be nominated in a Response Plan, and although they may be from the Lead Agency, they need not be a government employee. The Authorised Person should be appropriately qualified and sourced from existing expertise, where possible and appropriate.
Jurisdictional legislative instrument	A state or territory’s gazetted notice of a regulation.
Lead Agency	The agency(s) of the State(s) or Territory(s) which are responsible for leading the conduct of a Response Plan (because of the occurrence of an Incident within their State(s) or Territory(s)).
Owner(s)	Owner(s) of a Crop, Crops or sub-group of Crops, or a property, which is/are subject to a Response Plan, or their authorised representatives.
Relevant Parties	In respect of the taking of a decision or action, the Parties which may be affected (or, where they are an Industry Party, the members of which may be affected) by the decision or action.

*Note this list is not comprehensive. Refer to clause 1.1 of the EPPRD for definitions of capitalised words/terms (excluding names) used in this framework*

**Revision history**

Version	Date issued	Amendment Details	
		Element(s)	
Draft		All	New ORC Evidence Framework.
1.0	8 July 2019	All	Endorsed by Cotton Australia, government Parties and the Plant Health Australia Board.

	Definition of Elements from the EPPRD	Evidence requirements (in hierarchical order)	Additional Information
<b>A</b>	Estimated farm gate value of the Crop(s) destroyed which would otherwise have been harvested, where the timing of valuation is normal harvest time = a * y * p		
	a = area of Crop destroyed	<p>Certification/assessment of the area of Crop destroyed by an Authorised Person using one of the following methods:</p> <ol style="list-style-type: none"> <li>1. Accurate property maps.</li> <li>2. Satellite imagery. This will depend on the specific jurisdictions' capacity to access such information.</li> <li>3. Aerial photographs. This will depend on the specific jurisdictions' capacity to access such information.</li> <li>4. On ground surveys will be conducted using GPS data if the previous options are not available at the time of incursion and Crop destruction.</li> </ol>	<ul style="list-style-type: none"> <li>• The majority of cotton growers will be able to provide accurate property maps.</li> <li>• Field and/or farm area may also be obtained from aerial or ground spray applications, or other field operations using GPS.</li> <li>• An on the ground survey will also be required to verify the type of Crop being grown on the area at the time of the incursion. This will be carried out by an Authorised Person.</li> <li>• The jurisdictional legislative instrument (by whatever name) will identify the quarantine zone, and the Lead Agency must hold appropriate records of the area of Crop affected.</li> </ul>
	<p>y = estimated yield of the Crop destroyed</p> <p>= <math>\frac{\text{regional average yield in year } t * \text{Claimant's yield in year } t-1}{\text{regional average yield in year } t-1}</math></p> <p>Where the whole district is seriously affected by the pest being eradicated and regional yields are clearly distorted, the yield (y) for the determination of Owner Reimbursement Costs paid by the applicable State/Territory will be taken as the regional average for the five years to year t-1.</p>	<p>Certification/assessment of the yield by an Authorised Person using one of the following methods:</p> <ol style="list-style-type: none"> <li>1. Actual yield determined by harvesting the mature Crop.</li> <li>2. The formula as specified in the EPPRD will apply: <math display="block">\frac{\text{Regional average yield in year } t * \text{Claimant's yield in year } t-1}{\text{regional average yield in year } t-1}</math> <ul style="list-style-type: none"> <li>• Year t refers to the year in which the Crop is destroyed.</li> <li>• Regional average data (in year t and t-1) will be sourced for the variety and cropping system used</li> </ul> </li> </ol>	<ul style="list-style-type: none"> <li>• Valuations are conducted at the time of regional harvesting so that the regional average data can be sourced for the year in which destruction took place and thus more reliably reflect what the Owner's yield (and price) would have been.</li> <li>• Yields are region-specific. Regional average yield data (kg lint ha<sup>-1</sup>) could be provided by ABARES, Boyce Chartered Accountants or ginning companies. Seed companies may also have records of values of yield as a result</li> </ul>

	<b>Definition of Elements from the EPPRD</b>	<b>Evidence requirements (<i>in hierarchical order</i>)</b>	<b>Additional Information</b>
	<p>Yields protected by insurance policies would be protected under this Method of Valuation (to the extent that the Owner is not able to recover under the insurance policy) and any insurance premiums are not to form part of Owner Reimbursement Costs.</p>	<p>by the Owner.</p> <ul style="list-style-type: none"> <li>• The Claimant's (Owner's) yield in the year prior to Crop destruction (t-1) will be calculated from the Owner's auditable historical yield and ginning data records.</li> </ul> <p>3. If the data to calculate 2 is not available (e.g. as the Owner yield data for the previous year cannot reliably be sourced) or if regional yields are clearly distorted as they have been impacted by the pest being eradicated, regional average data for the 5 years up to the year prior to Crop destruction (t-1) will be used.</p>	<p>of commercial trials which could be used as an additional source of information, for example, Cotton Seed Distributors' Trial Results.</p> <ul style="list-style-type: none"> <li>• Lint yield and seed information (turnout) for different varieties can also be acquired from gins and used to help estimate yield. Yield and turnout are largely dependent on genotype (variety including transgenic traits), environment and management (including whether crops are grown under dryland, irrigated, or semi-irrigated systems).</li> <li>• Cotton boll counts prior to harvest are unreliable in estimating yield.</li> <li>• Australian cotton is picked (harvested) either by the Owner, or by a contractor engaged by the Owner.</li> <li>• The majority of cotton is ginned in Australia. A small amount may be sent overseas for ginning.</li> </ul>
	<p>p = estimated farm gate price (local silo cash price less transport costs between farm gate and silo) at the time of harvest. Specifically, the average price for the two calendar months over which the bulk of regional harvest takes place. Where no cash prices are posted, prices are to be taken as the estimated pool return for the type and quality of Crop which was destroyed. In the event that an Owner has taken out a forward contract to deliver grain</p>	<p>1. If there is a contract in place the price under the contract will be used.</p> <p>This may be adjusted for expected quality and grading (by applying premium/discount rates that are current at the time that the Owner would have harvested the destroyed Crop), according to contract terms.</p> <p>2. For cotton not contracted, the price will be calculated for the individual Owner from their auditable historical records.</p> <p>This may be adjusted for expected quality and grading (by applying premium/discount rates that are current at</p>	<ul style="list-style-type: none"> <li>• Valuations are conducted at the time of regional harvesting so that the average data can be sourced for the year in which destruction took place and thus more reliably reflect what the Owner's price (and yield) would have been.</li> <li>• Depending on where in Australia the Crop is grown, the timing for regional harvest may not be defined to a short period of time. e.g. in central Queensland, there is a long period over which cotton can be sown and hence</li> </ul>

	<b>Definition of Elements from the EPPRD</b>	<b>Evidence requirements (<i>in hierarchical order</i>)</b>	<b>Additional Information</b>
	<p>at a specific price, assessment of 'p' is to be based on this contract price rather than the cash silo price. Price is to reflect the quality of product that would otherwise have been delivered. Owners would need to demonstrate quality by way of variety sown and/or recent farm history.</p> <p>In the event of there being no obvious local delivery point where cash prices are posted, the average district price (based on deliveries to closest end users or port) is to be used as the basis for payment.</p>	<p>the time that the Owner would have harvested the destroyed Crop).</p> <p>3. A seasonal average price will be used.</p>	<p>regional harvesting can occur across a window of approximately 6 months.</p> <ul style="list-style-type: none"> <li>• Cash contract: Typically, 50-60% of cotton in the ground would be under cash contract. There may be a penalty delivered to the Owner if contract is cancelled or washed out. Cancellation costs would depend on market conditions, prices offered on the date of contract, date of contract cancellation. Penalties and cancellation costs are considered consequential losses and are thus not included in the calculation of an ORC.</li> <li>• Pool contract: Pool contracts are offered by individual merchants. If an Owner has an existing "pool" contract this is for the cotton yielded from a specified acreage. Pool price paid would be based on "indicative price".</li> <li>• Depending on the Owner, only a certain portion of the Crop may be under contract.</li> <li>• Decision points on contract prices may be negotiated 3 years out of harvest, half way through the season, or during harvest.</li> <li>• Owners are also paid for the seed fraction of the cotton bale. The market value for cotton seed varies significantly depending on supply and demand.</li> <li>• Owners usually sell lint to a merchant but there may be a small amount of business conducted direct Owner to mill.</li> <li>• The market price for cotton is volatile, and largely driven by the United States dollar and</li> </ul>

	Definition of Elements from the EPPRD	Evidence requirements ( <i>in hierarchical order</i> )	Additional Information
			<p>the cotton futures market.</p> <ul style="list-style-type: none"> <li>• Premiums or discounts associated with fibre quality cannot be determined if a Crop is not harvested in which case Owner records for premiums/discounts may need to be used, adjusted based on current market price for premiums/discounts for comparable varieties, production systems and environmental conditions.</li> <li>• Premiums may be offered for bales that are certified Better Cotton Initiative cotton, or equivalent future certifications.</li> <li>• Average price for the season may vary significantly within a particular region. The time at which the Owner would have otherwise harvested the Crop should be taken into account when sourcing average data across the industry.</li> <li>• Averages (for the variety and cropping system) may be sourced from Boyce Chartered Accountants or ABARES. This relates to the determination of the seasonal average price.</li> <li>• An independent seasonal average price could also be provided by an organisation such as Cotton Compass.</li> </ul>
<b>B</b>	<p>= 'Best practice' harvesting costs plus any other costs normally associated with Crop production between the time of Crop destruction and harvest.</p> <p>Such costs are to be standardised for the region based on estimates by</p>	<p>Best practice costs associated with Crop production between the time of Crop destruction and harvest, as well as harvest costs will be determined by State/Territory Agriculture Departments in consultation with Relevant Parties, best practice groups and agronomists using applicable local/district contract prices and in accordance</p>	<ul style="list-style-type: none"> <li>• Cotton has a very extensive Best Management Practice (myBMP) program which details practices around pest &amp; weed management, irrigation, picker maintenance and module management for optimising fibre quality.</li> </ul>

	<b>Definition of Elements from the EPPRD</b>	<b>Evidence requirements (in hierarchical order)</b>	<b>Additional Information</b>
	State/Territory departments of agriculture.	with <i>Appendix 1: Schedule of gross margins for B, C and E</i> . Where an Owner has auditable records to support a different gross margin (possibly due to different harvesting methods or systems) specific reference to an Owner's individual gross margin will be used as appropriate.	<ul style="list-style-type: none"> <li>• Best practice harvest costs data are available through CottonInfo, State/Territory Agriculture Departments or Boyce Chartered Accountants.</li> <li>• Values provided in <i>Appendix 1: Schedule of gross margins for B, C and E</i> are estimates. In the event of an incursion where Owner Reimbursement Costs may be paid, the schedule of gross margins will be reviewed and updated by agreement of the Relevant Parties to allow current and case specific information to be used.</li> </ul>
<b>C</b>	= Direct costs associated with the Response Plan incurred by the Owner but not normally incurred as a production expense.	<p>This will depend on what the Response Plan requires and will need to be calculated on an Incident by Incident basis.</p> <p>A standard schedule of regional gross margins will be used to estimate normal costs based on standard local/district or regional contract prices as appropriate. This will be determined by State/Territory Agricultural Departments in consultation with Relevant Parties and in accordance with <i>Appendix 1: Schedule of gross margins for B, C and E</i>.</p> <p>A schedule of costs additional to these, required by the Response Plan, will be developed by the Lead Agency at the time of the Incident.</p> <p>Where an Owner has auditable records to support a different gross margin (possibly due to different harvesting methods or systems) specific reference to an Owner's individual gross margin will be used as appropriate.</p>	<ul style="list-style-type: none"> <li>• Required actions/treatments by Owners need to be specifically defined in a Response Plan.</li> <li>• The legislative order needs to specify the actions/treatments required that are to be undertaken by the Owner.</li> <li>• Values provided in <i>Appendix 1: Schedule of gross margins for B, C and E</i> are estimates. In the event of an incursion where ORCs may be paid, the schedule of gross margins will be reviewed and updated by agreement of the Relevant Parties to allow current and case specific information to be used.</li> <li>• Regional benchmarking for farm business performance is undertaken by a number of agricultural analytical service providers and can be used to determine line items for a grower's gross margin.</li> </ul>
<b>D</b>	= Replacement value of any capital items destroyed as part of the Response Plan.	Replacement value of any capital items destroyed will depend on what the Response Plan requires and will need	<ul style="list-style-type: none"> <li>• The legislative order needs to identify the item requiring destruction.</li> </ul>

	Definition of Elements from the EPPRD	Evidence requirements ( <i>in hierarchical order</i> )	Additional Information
		<p>to be calculated on an Incident by Incident basis.</p> <p>Prices will be sourced from suppliers like:</p> <ul style="list-style-type: none"> <li>• Landmark;</li> <li>• Elders;</li> <li>• Roberts; or</li> <li>• Other specialist suppliers at the time of the Incident.</li> </ul> <p>Costs are to be determined in accordance with a schedule of market values for items expected to be destroyed, replacing like with like, and agreed by Relevant Parties at the time of developing a Response Plan.</p>	<ul style="list-style-type: none"> <li>• Known capital items requiring destruction need to be specified in a Response Plan.</li> <li>• However, some items cannot be replaced until the fallow period ends. The price of these items is likely to increase during the fallow period. As such, an appropriate rate of input price inflation must be determined and applies to these prices. Subsequent values are then depreciated.</li> <li>• Replacement value of any capital items destroyed as an unintended consequence of an eradication program need to be included in this element but will not necessarily be specified in the Response Plan. Unintended destruction of capital items will be dealt with on an Owner-by-Owner basis.</li> <li>• Capital items for cotton fields could potentially include (but are not limited to): <ul style="list-style-type: none"> <li>○ Farm machinery items</li> <li>○ Field bins</li> <li>○ Irrigation lines and irrigation equipment</li> <li>○ Harvest equipment</li> <li>○ Protective covers and support structures</li> <li>○ Field structures (e.g. head ditches, drains)</li> <li>○ Water capture and storage infrastructure.</li> </ul> </li> </ul>
<b>E</b>	<p>= Loss of profits from fallow land in subsequent years where land is required to be fallowed as part of the Response Plan.</p> <p>Owner Reimbursement Costs are to be restricted to loss of profits for a maximum of</p>	<p>To estimate loss of profit use the method as described at element A to calculate the farm gate value. Costs normally associated with Crop production (including ground preparation and planting costs) are then deducted from the farm gate value.</p>	<ul style="list-style-type: none"> <li>• E only applies if a strict (bare) fallow is required under a Response Plan (i.e. no alternative crop can be grown) and is restricted to a maximum of 3 years loss of profit.</li> </ul>



	Definition of Elements from the EPPRD	Evidence requirements ( <i>in hierarchical order</i> )	Additional Information
	<p>three years. Methods of estimating loss of profits are the same as for the year in which the Crop is destroyed and include deductions for ground preparation and planting costs normally associated with Crop production. Such costs are to be standardised, based on 'best practice' and estimated by State/Territory departments of agriculture. Any payment of Owner Reimbursement Costs by the applicable State or Territory is to be made after harvest in that region each year.</p>	<p>To estimate costs normally associated with Crop production, a schedule of regional gross margins will be used, which are to be standardised based on "best practice." This will be determined by State/Territory Agriculture Departments in consultation with Relevant Parties and best practice groups and in accordance with <i>Appendix 1: Schedule of gross margins for B, C and E</i>. Where an Owner has auditable records to support a different gross margin for normal production costs (possibly due to different planting or harvesting methods or systems) specific reference to an Owner's individual gross margin will be used as appropriate.</p>	<ul style="list-style-type: none"> <li>• The assumptions used to develop the gross margins (<i>Appendix 1: Schedule of gross margins for B, C and E</i>) will have to be considered when referring to them (e.g. planting density).</li> <li>• Values provided in <i>Appendix 1: Schedule of gross margins for B, C and E</i> are estimates. In the event of an incursion where ORCs may be paid, the schedule of gross margins will be reviewed and updated by agreement of the Relevant Parties to allow current and case specific information to be used.</li> </ul>
F	<p>= Profits that could be earned from the next best alternative enterprise, produced with the same resources, on the land where the Crop is destroyed and permitted by the Response Plan.</p> <p>Unless the Response Plan requires the land to be fallow, deductions are to be made on the assumption that the Owner chooses the next most profitable enterprise that could be undertaken with existing capital equipment. Gross margins for these alternative enterprises are to be standardised, based on 'best practice' and estimated by State/Territory departments of agriculture. This applies only in the year in which the Crop is destroyed. Where a strict fallow in subsequent years is not required under the Response Plan — that is, any alternative enterprise can be undertaken except production of the Crop concerned in</p>	<ol style="list-style-type: none"> <li>1. Where the alternate crop is one that the Owner typically grows in rotation with cotton, the gross margin will be calculated for the individual Owner from their auditable historical records.</li> <li>2. Gross margins for alternate crops will be standardised, based on 'best practice' and estimated by State/Territory Departments of Agriculture.</li> </ol>	<ul style="list-style-type: none"> <li>• F only applies when a cotton fallow is required under the Response Plan however an alternate crop can be grown. This is only applicable in year 1. That is, where the response allows an alternate crop to be grown, profits from that crop will be deducted from the ORC for the year in the which the Crop is destroyed (year 1). No ORCs will be paid for the years following Crop destruction if an alternate crop can be grown, hence F only applies in year 1.</li> <li>• The primary goal should be to reduce the costs of the response to the Affected Parties. There needs to be a mechanism to enable people to remain productive when there is an incursion. It will be assumed that where the response allows, an Owner will grow an alternative crop as the first option to remain productive.</li> <li>• The EPPRD assumes that the Owner will</li> </ul>

	<b>Definition of Elements from the EPPRD</b>	<b>Evidence requirements (<i>in hierarchical order</i>)</b>	<b>Additional Information</b>
	the Response Plan, Owner Reimbursement Costs are not to include the difference in profits for the Crop in question and any alternative enterprise.		<p>choose to run the next most profitable enterprise that could be undertaken with existing capital equipment. However, some requirements are:</p> <ul style="list-style-type: none"> <li>○ The alternate crop must be a crop the farmer is set up for and confident/experienced to grow (e.g. a crop typically used in rotation).</li> <li>○ The alternative crop choices will depend on the pest, host range and persistence in the environment.</li> <li>○ The alternative crop plant must be permitted to be grown under the response and not be affected by the pest or allow it to persist.</li> </ul> <ul style="list-style-type: none"> <li>● Standardised returns to be estimated for crops relevant to the affected region and dependent on seasonal conditions and crop cycle. An Authorised Person is to assess each enterprise for the suitability of each relevant crop, including farm records and the experience and equipment normally available to the Owner.</li> <li>● Gross margins information for different regions may be sourced from state agencies, industry organisations, or agronomists. Templates for calculating gross margins and considerations for different crops are provided in State Department of Agriculture links in <i>Appendix 1</i>.</li> </ul>
<b>G</b>	= Value of any stored grain or other	Price and yield to be determined using the applicable	<ul style="list-style-type: none"> <li>● This will depend on what the Response Plan</li> </ul>

	<b>Definition of Elements from the EPPRD</b>	<b>Evidence requirements (<i>in hierarchical order</i>)</b>	<b>Additional Information</b>
	<p>produce on-farm destroyed as part of the Response Plan. The value is to be in-silo value based on local market values less transport and handling costs at the time of destruction of the stored grain.</p> <p>Where a Crop has to be destroyed shortly after planting and there is a reasonable opportunity to plant an alternative Crop, the Owner may choose to be reimbursed for the costs of destroying the Affected Crop and planting the alternative Crop. Otherwise, the above formula will apply.</p>	<p>method as described in “A”.</p> <p>Amount of any stored product will be determined by inspection at the time of the incident.</p>	<p>requires and will be calculated on an Incident by Incident basis.</p> <ul style="list-style-type: none"> <li>• Stored produce may include stored seed.</li> <li>• Assessment is made by an Authorised Person.</li> </ul>

## Appendix 1 Schedule of Costs for B, C and E

In the event of an incursion where Owner Reimbursement Costs may be paid, the costs and values will be reviewed and updated by agreement of the Relevant Parties to allow current and case specific information to be used.

Cost margins presented below are developed by the NSW Department of Primary Industries in conjunction with CottonInfo and are available at:

<https://www.dpi.nsw.gov.au/agriculture/budgets/summer-crops>

All costs presented in this Appendix are estimates for the 2017-18 cotton season. Costs will vary significantly depending on whether ground water, surface water, overhead irrigation, rainfed or semi-rainfed production systems are used. Costs may also differ depending on climatic and seasonal conditions (e.g. extra defoliations for cotton crops grown in the Southern Valleys). Budgets are available at the above link for different cotton systems.

Gross margin templates can be obtained from NSW or Qld State Departments of Agriculture. The NSW Department of Primary Industries template is available online at:

<http://archive.dpi.nsw.gov.au/content/agriculture/farm-budgets-and-costs/templates>

Other useful links include:

- Australian Cotton Comparative Analysis, Boyce Chartered Accountants  
<https://www.boyceca.com/boyce-newsfeed/category/australian-cotton-comparative-analysis>
- A Basic Guide to Cotton Pricing and Quality, CottonInfo Jan 2017  
<https://www.cottoninfo.com.au/publications/basic-guide-cotton-pricing-and-quality>

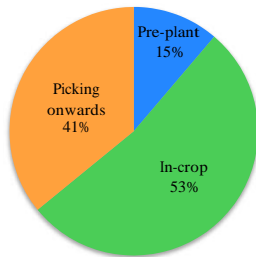
2017-18

## Gross Margin Budget: Furrow Irrigated Cotton

Bollgard3®, Roundup Ready Flex®

INCOME:				Example	Your
				Budget	Budget
				\$/ha	\$/ha
11.00	bales/ha @	Cotton lint	\$466 /bale (at gin)	\$5,126	_____
		Cotton seed	\$75 /bale (at gin)	\$825	_____
A. TOTAL GROSS INCOME \$/ha:				\$5,951	_____

VARIABLE COSTS:  
See pg 2 for details



Fallow management	\$93	_____
Farming: Pre-planting	\$31	_____
Nutrition	\$359	_____
Planting & in-crop farming	\$143	_____
Irrigation (9.61 ML)	\$479	_____
Insurance	\$110	_____
Crop protection, application & licence fee	\$741	_____
Defoliation	\$144	_____
Picking, cartage & ginning	\$1,095	_____
Farming: Post-crop	\$81	_____
B. TOTAL VARIABLE COSTS \$/ha:	\$3,275	_____

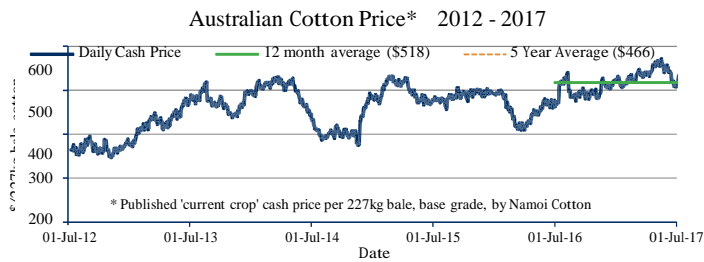
C. GROSS MARGIN (A-B) \$/ha:	\$2,676	_____
D. GROSS MARGIN (A-B/ML applied) \$/ML:	\$278	_____

Approximate Breakeven Yield (bales/ha) based on lint & seed prices above:	7.03 bales/ha
Approximate Breakeven Price (\$/bale) based on 11 bales/ha:	\$298 \$/bale
Note that break even yield & price is for variable costs only, overhead costs and labour are NOT considered	

### SENSITIVITY TABLE

YIELD	PRICE (\$/bale incl. of seed & discounts)				
	366	416	466	516	566
8	-147	228	603	978	1353
9	278	728	1178	1628	2078
10	561	1061	1561	2061	2561
11	844	1394	1944	2494	3044
12	1127	1727	2327	2927	3527
13	1410	2060	2710	3360	4010
15	1834	2559	3284	4009	4734

### COTTON PRICE HISTORY & TRENDS



This budget is designed to give an indication of operations and costs required to grow a cotton crop. Prices are estimates only. A grower should alter this budget to take account of individual field management plans, movements in crop and input prices and changes in seasonal conditions. In all instances, operations should be tailored to the requirements of individual paddocks. For a complete guide to cotton management, see the Australian Cotton Production Manual 2017.

Variable Costs by Operation	Machinery		Inputs			TOTAL
	Total	Rate	Cost	Cost	Cost	
	\$/ha	/ha Unit	\$/unit	\$/ha	\$/ha	
<b>Fallow management</b>						
Nov Fallow spray: Glyphosate (450g/L)	Self Propelled	1.00	2.00 L	4.00	8.00	9.00
Nov Fallow spray: 2,4-D amine (625g/L)	with above		0.40 L	4.00	1.60	1.60
Jan Fallow spray: Glyphosate (450g/L)	Self Propelled	1.00	2.00 L	4.00	8.00	9.00
Jan Fallow Spray: Fluroxypyr (333g/L)	with above		0.40 L	22.00	8.80	8.80
Mar Fallow Spray: Glyphosate (450g/L)	Self Propelled	1.00	2.00 L	4.00	8.00	9.00
Mar Fallow spray: Pendimethalin (440g/L)	with above		2.25 L	11.00	24.75	24.75
Jun Fallow Spray: Glyphosate (450g/L)	Self Propelled	1.00	2.00 L	4.00	8.00	9.00
Jun Fallow Spray: Diuron (900g/kg)	with above		1.00 Kg	9.00	9.00	9.00
Jun Fallow Spray: S-metolachlor (960g/L)	with above		1.00 L	13.00	13.00	13.00
<b>Farming: Pre-planting</b>						
Jul Farming: Discing	295 eng/HP	9.90				9.90
Jul Farming: Hill up	295 eng/HP	13.70				13.70
Aug Farming: Rubber tyre roller	225 eng/HP	6.90				6.90
<b>Nutrition</b>						
Jul Fertiliser: MAP	with 'Hill up'		150 kg	0.62	92.85	92.85
Aug Fertiliser: Urea (140kg N)	295 eng/HP	17.60	304 kg	0.44	134.06	151.66
Nov Fertiliser: Urea - water run (120kg of N)	in irrigation		260 kg	0.44	114.66	114.66
<b>Planting &amp; in-crop farming</b>						
Oct Planting: Precision planter	295 eng/HP	10.10				10.10
Oct Planting: Seed: Roundup Ready Flex® Bollgard3®	with above		13 kg	8.85	115.05	115.05
Dec Farming: Cultivation: Inter-row	295 eng/HP	10.20				10.20
Dec Farming: Rip / Rotobuck (twice in season)	225 eng/HP	8.00				8.00
<b>Irrigation management</b>						
Sep Irrigation: Pre-plant <sup>#</sup>			1.60 ML	50.00	80.00	80.00
Nov Irrigation: In-crop (x8)			7.90 ML	50.00	395.00	395.00
Jun Other: Soil moisture monitoring	Contractor	4.00				4.00
<b>Crop protection, application &amp; licence fee</b>						
Dec Insecticide: Sulfoxaflor (500g/kg), target: mirids	Self Propelled	1.00	0.12 L	260.00	31.20	32.20
Dec Insecticide: Fipronil (200g/L), target: mirids	Self Propelled	1.00	0.06 L	107.00	6.42	7.42
Jan Insecticide: Clothianidin (200g/L), target: mirids, GVB	Aerial Spraying	15.00	0.20 L	69.00	13.80	28.80
Jan Insecticide: Pyriproxyfen (100g/L), target: SLW	Aerial Spraying	15.00	0.50 L	132.00	66.00	81.00
Feb Insecticide: Diafenthiuron (500g/L), target: SLW, aphids, mites	Aerial Spraying	15.00	0.60 L	61.00	36.60	51.60
Oct Herbicide: Pendimethalin (455g/L)	Self Propelled	1.00	2.20 kg	14.00	30.80	31.80
Nov Herbicide: Roundup Ready® Plantshield® (690g/kg Glyphosate)	Self Propelled	1.00	1.20 kg	8.00	9.60	10.60
Dec Other: Chipping or Spot Spray		5.00				5.00
Jan Herbicide: Roundup Ready® Plantshield® (690g/kg Glyphosate)	Aerial Spraying	15.00	1.20 kg	8.00	9.60	24.60
Mar Licence: Bollgard 3® stacked RRF Licence Fee						390.00
Jun Other: Consultant	Contractor	60.00				60.00
Jun Refuge: Refuge crop: Pigeon peas 2.5%, see page 3			0.11 ML			17.88
<b>Defoliation</b>						
Mar Defoliation: Thidiazuron + Diuron (120g + 60g/L)	Self Propelled	2.90	0.15 L	157.00	23.55	26.45
Mar Defoliation: Ethephon (720g/L)	with above		0.50 L	7.00	3.50	3.50
Mar Defoliation: Crop oil	with above		1.00 L	6.00	6.00	6.00
Mar Defoliation: Thidiazuron + Diuron (120g + 60g/L)	Aerial Spraying	15.00	0.15 L	157.00	23.55	38.55
Mar Defoliation: Ethephon (720g/L)	with above		2.50 L	7.00	17.50	17.50
Mar Defoliation: Crop oil	with above		1.00 L	6.00	6.00	6.00
Apr Defoliation: ETee® (25g/L + 756g/L + 102g/L)	Aerial Spraying	15.00	0.08 L	224.00	17.92	32.92
Apr Defoliation: Ethephon (720g/L)	with above		1.00 L	7.00	7.00	7.00
Apr Defoliation: Crop oil	with above		1.00 L	6.00	6.00	6.00
<b>Picking, cartage &amp; ginning</b>						
Apr Picking: Own plant: round baler (variable costs only, incl. fuel)	CP690	60.00	per ha			60.00
Apr Picking: plus wrap		47.00	round bale		11.06 / lint bale	121.65
May Cartage: Lift		7.00	round bale	12 round bales/truck	1.65 / lint bale	18.12
May Cartage: Freight	costs related to yield	53.00	round bale	50 km from gin	12.47 / lint bale	137.18
May Ginning: Fibre processing		65.00	/ lint bale		65.00 / lint bale	715.00
Jun Levies: Research levy & Cotton Australia levy		3.90	/ lint bale		3.90 / lint bale	42.90
<b>Farming: Post-crop</b>						
Jun Farming: Mulcher with root cutter	295 eng/HP	11.90				11.90
Jun Farming: Desilting & grading channels	Contractor	50.00				50.00
Jun Herbicide: Sterilising channels	225 eng/HP	5.00				5.00
Jun Farming: Bed renovation (check bt licence requirements)	295 eng/HP	13.70				13.70
<b>Other</b>						
Nov Crop insurance:				Premium depends on various factors		110.00
<b>B. TOTAL VARIABLE COSTS \$/ha:</b>						<b>3,275</b>
Total irrigation water use ML/ha:						9.61 ML

**Furrow Irrigated Pigeon Peas**  
(refugia for Bollgard3® cotton)

2017-2018

Variable Costs by Operation	Machinery		Inputs			TOTAL
	Total \$/ha	Rate /ha Unit	Cost \$/unit	Cost \$/ha	Cost \$/ha	
<b>Fallow management</b>						
Nov Fallow spray: Glyphosate (450g/L)	Self Propelled with above	1.00	2.00 L	4.00	8.00	9.00
Nov Fallow spray: 2,4-D amine (625g/L)			0.40 L	4.00	1.60	1.60
Jan Fallow spray: Glyphosate (450g/L)	Self Propelled with above	1.00	2.00 L	4.00	8.00	9.00
Jan Fallow Spray: Fluroxypyr (333g/L)			0.40 L	22.00	8.80	8.80
Mar Fallow Spray: Glyphosate (450g/L)	Self Propelled with above	1.00	2.00 L	4.00	8.00	9.00
Mar Fallow spray: Pendimethalin (440g/L)			2.25 L	11.00	24.75	24.75
Jun Fallow Spray: Glyphosate (450g/L)	Self Propelled with above	1.00	2.00 L	4.00	8.00	9.00
Jun Fallow Spray: Diuron (900g/kg)			1.00 Kg	9.00	9.00	9.00
Jun Fallow Spray: S-metolachlor (960g/L)	with above		1.00 L	13.00	13.00	13.00
<b>Farming</b>						
Jul Farming: Discing	295 eng/HP	9.90				9.90
Jul Farming: Hill up	295 eng/HP	13.70				13.70
Aug Farming: Rubber tyre roller	225 eng/HP	6.90				6.90
Dec Farming: Cultivation: Inter-row	295 eng/HP	10.20				10.20
<b>Nutrition</b>						
Jul Fertiliser: MAP	with 'Hill up'		150 kg	0.62	92.85	92.85
<b>Planting</b>						
Oct Planting: Seed: Pigeon pea	225 eng/HP	10.10	40.0 kg	4.00	160.00	170.10
<b>Irrigation</b>						
Nov Irrigation: In-crop (x4)			4.50 ML	50.00	225.00	225.00
<b>Herbicide &amp; application</b>						
Sep Herbicide: Pendimethalin (455g/L)	Self Propelled with above	1.00	2.00 kg	11.00	22.00	23.00
Sep Herbicide: Prometryn (500g/L)			2.50 kg	15.00	37.50	37.50
May Herbicide: Glyphosate (450g/L)	Self Propelled	1.00	1.60 L	4.00	6.40	7.40
<b>Post-crop</b>						
Apr Farming: Crop destruction (slashing)	225 eng/HP	11.90				11.90
Jun Farming: Bed renovation (check bt licence requirements)	295 eng/HP	13.70				13.70
<b>B. TOTAL VARIABLE COSTS \$/ha:</b>						<b>715</b>
Total irrigation water use ML/ha:			4.5 ML			

2017-18 Cotton Gross Margins, brought to you by the cotton industry's joint extension program, CottonInfo.

**Foot notes**

**Cost of water:** The cost of applied irrigation water varies considerably depending on; source (groundwater, surface water), number of times pumped to get to field, the energy source of pumps and relevant fees and charges. In the furrow irrigated budget, a cost of \$50/ML is used assuming pumping from a regulated groundwater source (fees \$17/ML) with water 'lifted' twice using diesel pumps (pumping and maintenance cost of \$33/ML). Pumping costs can be in excess of \$120/ML for bores.

**Rotation:** This budget assumes the previous crop was wheat, followed by a long fallow.

**Irrigation:** In cotton, requirements for applied irrigation water typically range from 8-13 ML/ha. The largest impact on water use is in-crop rainfall.

**Machinery costs:** The cost of each farming pass reflects variable costs only (fuel, repairs and maintenance), labour and depreciation are considered overhead costs, so are not included in this budget.

\* **Yield:** Actual yields are a complex result of agronomic and environmental factors. In this budget a yield of 11 bales/ha is appropriate considering the long fallow, fertiliser program and budgeted irrigation water.

See the Gross Margin Notes for further details on assumptions.

**Acknowledgements**

We wish to acknowledge the efforts made by industry specialists and management during the development and review of the 2017-18 cotton gross margin budgets. Assistance was provided by the Cotton Info team, CRDC, and CSD. Critical review and comments by Chris McCormack (Agronomics) are also gratefully acknowledged.

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