

Review of proposed expansion of the cotton industry in the Northern Territory

1 Summary

This analysis was prepared for the Environment Centre NT (ECNT) on behalf of the Territory Rivers Keep 'Em Flowing alliance. It examines three main claims by proponents of an expanded cotton industry in the Northern Territory, that it:

- is a highly profitable crop,
- will create many jobs and economic benefits, and
- is grown primarily for cotton seed.

1.1 Profitability of dryland cotton

It is claimed that almost three quarters of the area of cotton in the Northern Territory by 2030 will be dryland ('rainfed'), not irrigated.

However, the cotton industry's own financial analysis shows that dryland cotton is not profitable in the Northern Territory.

1.2 Jobs and economic benefits

Most claims about the number of jobs and their economic benefits generated by the cotton industry in the Northern Territory are overstated.

Most of the jobs generated by the cotton industry are likely to be transfers of existing Territorian jobs, or temporary workers from other states or countries.

1.3 Cotton seed for cattle feed

Representatives of the industry claim that the main motivation for growing cotton is for seed for cattle feed, and that cotton lint is a byproduct.

This is implausible. Cotton lint is worth about seven times as much as cotton seed.

1.4 Government subsidies

The development of a cotton industry in the Northern Territory requires substantial government assistance as it is not financially viable with private investment alone.

The Australian and Northern Territory governments are subsidising the industry by around \$42 million per year.

2 Cotton in the Northern Territory

The most recent efforts to expand the Northern Territory's cotton industry began after the lifting of a ban on genetically modified crops in 2018.

Eight hundred hectares of cotton was grown in the 2019-2020 season.¹ By the 2023-2024 season this had increased to 12,000 hectares.²

The industry forecasts that, by 2030, approximately 77,000 hectares will produce 400,000 bales of cotton, generating \$200 million of gross revenue.³

It is claimed that cotton will provide a substantial boost to the Northern Territory economy, generating profit, jobs and economic benefits, and benefitting the cattle industry by providing cotton seed for cattle feed.

David Connolly, a Director of WANT Cotton said:

We've been trying to find a silver bullet crop for the Northern Territory, and...it looks like this might be it...Farmers [will be] able to finally grow a crop that makes some profitability for them....⁴

The Northern Territory Farmers Association said:

It is expected that within a decade the NT cotton industry will generate \$250 million per year. This is a significant boost to the NT's economy...The industry will create hundreds of direct and indirect jobs...⁵

Adam Kay, the Chief Executive of Cotton Australia, explains that cotton is:

grain – that's what we're producing. Yes, there is a valuable by-product in the lint, but they're [Northern Territory cotton growers] producing the grain...⁶

These claims of economic benefits in terms of profitability, jobs, economic benefit, and cotton seed for cattle feed are considered below.

2.1 Calculating the profitability of cotton

Concepts related to determining profitability are:

- Profit or loss (before financing costs and income tax): the Gross Margin less Operating Costs,

¹ Northern Territory Government. (2024). Cotton. <https://nt.gov.au/industry/agriculture/food-crops-plants-and-quarantine/cotton>

² Kelly. (2024). Cotton Australia predict \$3.6 billion boost as picking ramps up.

<https://www.ragtrader.com.au/news/cotton-australia-predicts-3-6-billion-boost-as-picking-ramps-up>

³ Price Waterhouse Coopers for NT Farmers Association. (2019). Business Case for the Construction of a Cotton Gin in the Northern Territory. <https://ntfarmers.org.au/wp-content/uploads/2021/08/60321b63d7bd4778a95579680cac25f2.pdf>

⁴ Rowley. (2022). NT's first cotton gin nears completion as Katherine council considers stance on industry. <https://www.abc.net.au/news/2022-05-18/nt-first-cotton-gin-forges-ahead-katherine-council-weighs-stance/101071674>

⁵ Northern Territory Farmers, (2021). Modern Cotton. <https://ntfarmers.org.au/commodities/cotton/>

⁶ Kay. (2024). NT Country Hour: Tue 20 Aug 2024 at 1:00pm. <https://www.abc.net.au/listen/programs/nt-country-hour/nt-country-hour/104226642>

- Gross Margin: revenue less Direct Variable Costs,⁷
- Direct Variable Costs: costs that directly relate to, and are incurred proportionately with, the product being sold. They do not include overhead costs or labour.
- Operating Costs: costs such as labour, accommodation, motor vehicles, fuel, electricity, and depreciation. These will be different from farm to farm and region to region. Operating costs are additional to the Direct Variable Costs used to calculate the Gross Margin.

Each year, the cotton industry produces Gross Margin budgets per hectare for irrigated and dryland cotton in Northern Australia.⁸ These are shown in sections 2.2 and 2.3 below.

Each year, the Cotton Research and Development Corporation and Boyce Chartered Accountants report Average Operating Costs per hectare for a large sample of irrigated cotton in Australia.⁹ These are reported in section 2.2 below.

We did not find any industry estimates of average Operating Costs per hectare for dryland cotton. For this analysis we have assumed that Operating Costs for dryland cotton are 75 percent of the costs for irrigated cotton. This is reported in section 2.3 below.

The profitability of irrigated cotton and dryland cotton per hectare in Northern Australia is calculated below.

⁷ CottonInfo. (2023). *2023-24 Australian cotton industry gross margin notes & assumptions*. <https://cottoninfo.com.au/sites/default/files/inline-files/Gross%20margins%20notes%202023.pdf>

⁸ The Gross Margin budgets are produced by CottonInfo. CottonInfo is a joint venture between three cotton industry organisations, Cotton Australia, the Cotton Research and Development Corporation and Cotton Seed Distributors Ltd.

⁹ CDRC and Boyce. (2023). *2021 Australian Cotton Comparative Analysis Report*. <https://www.boyceca.com/resources/boyce-cotton-comparative-report-2021/>

2.2 Profitability of irrigated cotton in Northern Australia

The 2023-24 Gross Margin budget per hectare for irrigated cotton in Northern Australia is shown in *Figure 1*.

Operating Costs are not included in the Gross Margin budgets.

*Figure 1: Gross Margin budget for irrigated cotton in the Northern Territory*¹⁰

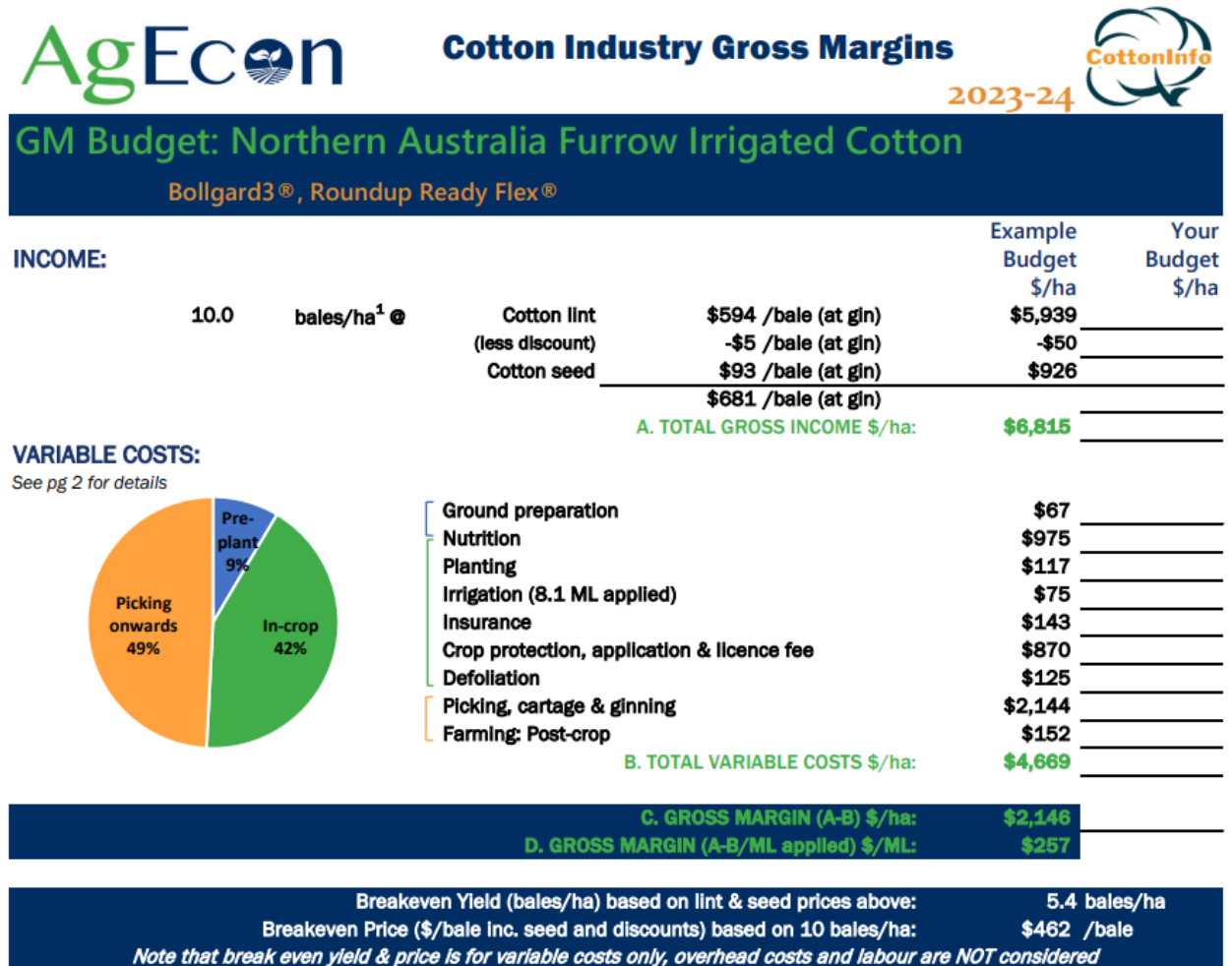


Figure 1 shows that the cotton industry advises a Gross Margin budget of \$2,146 per hectare for irrigated cotton in Northern Australia in 2023-24. This is based on a yield of ten bales per hectare, revenue of \$6,815 per hectare, and variable costs of \$4,669 per hectare.

According to analysis reported by the Cotton Research and Development Corporation and Boyce Chartered Accountants the average Operating Cost for irrigated cotton across Australia in 2021 was \$1,439 per hectare (See Appendix A). We have assumed that the Operating Costs for irrigated cotton in the Northern Territory is the same as the Australian average.

¹⁰ CottonInfo (2023). *Cotton Industry Gross Margins: GM Budget – Northern Australia Furrow Irrigated Cotton*. <https://cottoninfo.com.au/sites/default/files/inline-files/Northern%20Irrigated%202023-24.pdf>

According to industry estimates, irrigated cotton in Northern Australia makes a profit of \$707 per hectare (a Gross Margin of \$2,146 per hectare minus Operating Costs of \$1,439 per hectare). This is before financing costs and income tax.

2.3 Profitability of dryland cotton in Northern Australia

The 2023-24 Gross Margin budget per hectare for dryland cotton in Northern Australia is shown in *Figure 2*.

Operating costs are not included in the Gross Margin budgets.

Figure 2: Gross Margin Budget for dryland cotton in the Northern Territory¹¹

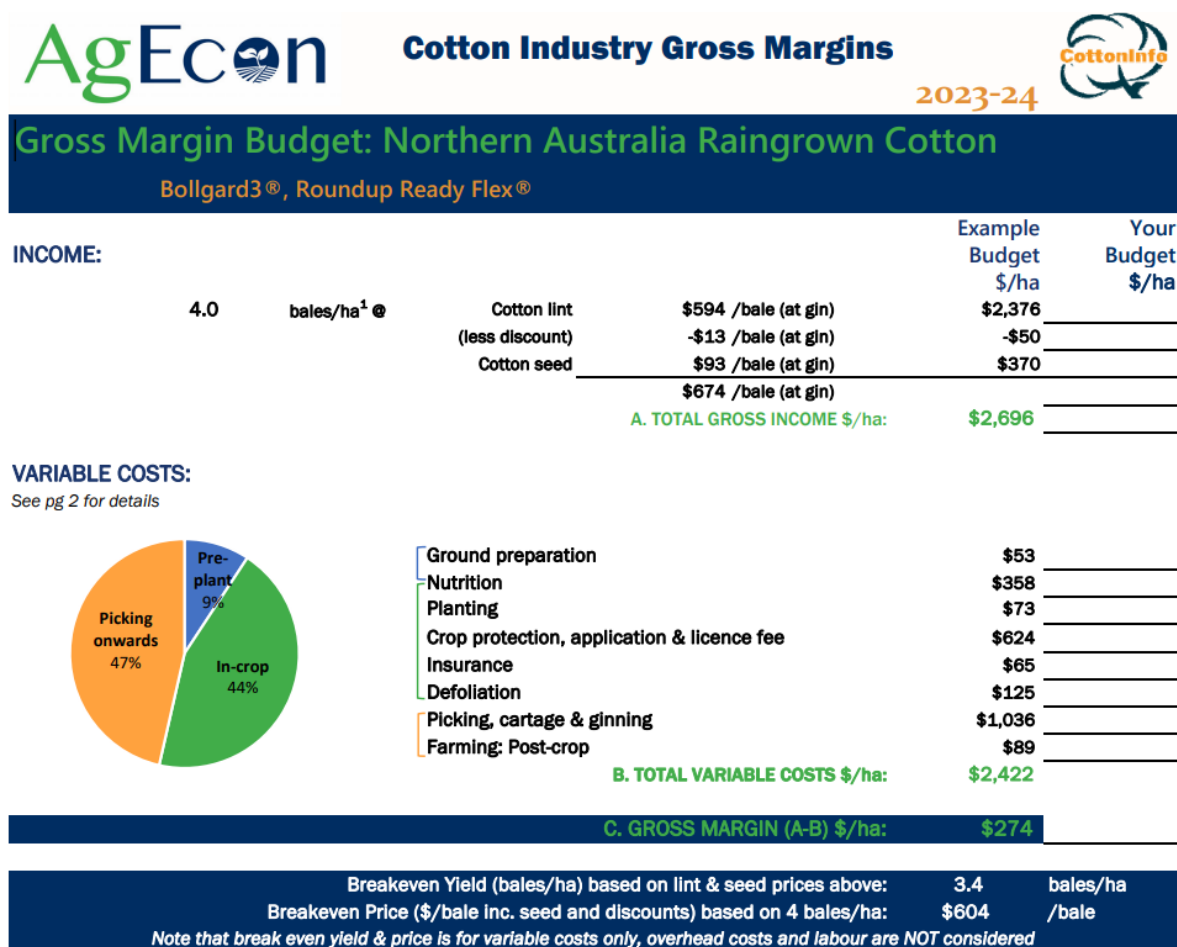


Figure 2 shows that the cotton industry advises a Gross Margin budget of \$274 per hectare for dryland cotton in Northern Australia in 2023-24. This is based on a yield of four bales per hectare, revenue of \$2,696 per hectare, and variable costs of \$2,422 per hectare.

No analyses of average Operating Costs for dryland cotton were available. For this review we have assumed that Operating Costs for dryland cotton are 75 percent of the Operating Costs for irrigated cotton (\$1,439), giving \$1,086 per hectare.

¹¹ CottonInfo. (2023). Cotton Industry Gross Margins: Gross Margin Budget – Northern Australia Raingrown Cotton. <https://cottoninfo.com.au/sites/default/files/inline-files/Northern%20Raingrown%202023-24.pdf>

According to industry estimates, dryland cotton in Northern Australia makes an estimated loss of \$812 per hectare (a Gross Margin of \$274 minus Operating Costs of \$1,086 per hectare). This is before financing costs and income tax.

Based on the cotton industry's forecasts, it is not financially viable to grow dryland cotton in the Northern Territory at any scale.

This is a conservative estimate of loss per hectare for dryland cotton in the Northern Territory based on near best practise yields of four bales per hectare. In 2023-24 yields for dryland cotton were 1.5 to 3.5 bales per hectare.¹² Lower yields increase the losses for dryland cotton growing.

2.4 Profitability of cotton in the Northern Territory

The industry estimates that 77,000 hectares of cotton will be grown in the Northern Territory by 2030, comprising 22,000 hectares of irrigated cotton and 55,000 hectares of dryland cotton.¹³

Based on the hectares forecast and profit and loss estimates per hectare, the total annual Profit or Loss for all cotton grown in the Northern Territory by 2030 can be calculated. This is shown in Table 1.

Table 1: Total annual Profit or Loss for cotton in the Northern Territory by 2030

	Irrigated cotton	Dryland cotton	Total
Projected Hectares ¹⁴	22,000 ha	55,000 ha	77,000 ha
Revenue	\$149,930,000 ¹⁵	\$148,280,000 ¹⁶	\$298,210,000
Variable Costs	\$102,718,000 ¹⁷	\$133,265,000 ¹⁸	\$235,983,000
Gross Margin	\$47,212,000	\$15,015,000	\$62,227,000
Operating Costs	\$31,658,000 ¹⁹	\$59,702,000 ²⁰	\$91,360,500
Profit / (Loss) before financing costs and income tax	\$15,554,000	(\$44,687,500)	(\$29,133,500)

¹² Brann. (2024). *NT Country Hour: Tue 20 Aug 2024 at 1:00pm*. <https://www.abc.net.au/listen/programs/nt-country-hour/nt-country-hour/104226642>

¹³ Price Waterhouse Coopers for NT Farmers Association. (2019). *Business Case for the Construction of a Cotton Gin in the Northern Territory*. <https://ntfarmers.org.au/wp-content/uploads/2021/08/60321b63d7bd4778a95579680cac25f2.pdf>

¹⁴ Price Waterhouse Coopers for NT Farmers Association. (2019). *Business Case for the Construction of a Cotton Gin in the Northern Territory*. <https://ntfarmers.org.au/wp-content/uploads/2021/08/60321b63d7bd4778a95579680cac25f2.pdf>

¹⁵ CottonInfo (2023). *Cotton Industry Gross Margins: GM Budget – Northern Australia Furrow Irrigated Cotton*. [https://cottoninfo.com.au/sites/default/files/inline-files/Northern%20Irrigated%2023-24.pdf](https://cottoninfo.com.au/sites/default/files/inline-files/Northern%20Irrigated%202023-24.pdf)

¹⁶ CottonInfo. (2023). *Cotton Industry Gross Margins: Gross Margin Budget – Northern Australia Raingrown Cotton*. [https://cottoninfo.com.au/sites/default/files/inline-files/Northern%20Raingrown%2023-24.pdf](https://cottoninfo.com.au/sites/default/files/inline-files/Northern%20Raingrown%202023-24.pdf)

¹⁷ CottonInfo (2023). *Cotton Industry Gross Margins: GM Budget – Northern Australia Furrow Irrigated Cotton*. <https://cottoninfo.com.au/sites/default/files/inline-files/Northern%20Irrigated%2023-24.pdf>

¹⁸ CottonInfo. (2023). *Cotton Industry Gross Margins: Gross Margin Budget – Northern Australia Raingrown Cotton*. [https://cottoninfo.com.au/sites/default/files/inline-files/Northern%20Raingrown%2023-24.pdf](https://cottoninfo.com.au/sites/default/files/inline-files/Northern%20Raingrown%202023-24.pdf)

¹⁹ CDRC and Boyce. (2023). [Boyce-Cotton-Comparative-Report-2021-1.pdf](https://boyceca.com/Boyce-Cotton-Comparative-Report-2021-1.pdf) (boyceca.com)

²⁰ 75 percent of the average Operating Costs per hectare calculated by CDRC and Boyce

Claims that 55,000 hectares, or 71 percent (Table 1), of the cotton grown in the Northern Territory by 2030 will be dryland are not credible given that dryland cotton is not profitable.

Using the above figures, dryland cotton will generate a loss of \$44.7 million and cause an overall loss of \$29.1 million for the cotton industry in the Northern Territory.

3 Jobs and economic benefits

A cotton industry in the Northern Territory will generate:

- short-term jobs constructing cotton gins,
- long-term jobs operating cotton gins,
- short-term jobs developing cotton farms, and
- long-term jobs growing cotton.

Four estimates for jobs and economic benefits from Northern Territory cotton are discussed. The methods used, and hence estimates derived, vary widely.

- 2,500 jobs by 2030 (Cotton Australia),²¹
- 200 jobs in 2019-20 with an economic benefit of \$18 million (Deloitte Access Economics),²²
- 90 jobs to construct cotton gins, with an economic benefit of \$19.6 million across the Northern Territory, and 424 ongoing jobs to operate four gins by 2025 (NT Farmers using PWC analysis),²³ and
- 38 jobs for one year to construct the Katherine cotton gin, with salaries of \$4.6 million,²⁴ and 30 ongoing jobs, with salaries of \$1.3 million (Price Waterhouse Coopers).^{25, 26}

No estimates of jobs developing cotton farms or growing cotton are available.

The estimates by Cotton Australia and Deloitte Access Economics are the highest provided. No method is provided and no sources are cited. These estimates cannot be substantiated and are not considered further.

²¹ Cotton Australia. (2024). *NT Government Promotes Benefits Of Cotton In The Top End*.

<https://cottonaustralia.com.au/news/nt-government-promotes-benefits-of-cotton-in-the-top-end>

²² Deloitte Access Economics. (2023). *Economic valuation of the maritime, agribusiness, minerals, oil, and gas industries*. <https://www.deloitte.com/au/en/services/economics/analysis/economic-valuation.html>

²³ NT Farmers. (2020). *Northern Territory Plant Industries Economic Analysis*. https://ntfarmers.org.au/wp-content/uploads/2021/07/NT_Plant_Industries_Economic_ImpactAnalysis_document_final-2020_compressed.pdf

²⁴ Price Waterhouse Coopers for NT Farmers Association. (2019). *Business Case for the Construction of a Cotton Gin in the Northern Territory (Table 11)*. <https://ntfarmers.org.au/wp-content/uploads/2021/08/60321b63d7bd4778a95579680cac25f2.pdf>

²⁵ Price Waterhouse Coopers for NT Farmers Association. (2019). *Business Case for the Construction of a Cotton Gin in the Northern Territory (Table 25)*. <https://ntfarmers.org.au/wp-content/uploads/2021/08/60321b63d7bd4778a95579680cac25f2.pdf>

²⁶ Note, Price Waterhouse Coopers reported two job estimates for the construction of the gin, and two job and salary estimates for the operation of the gin in the same report. The lowest estimates are quoted in this analysis.

3.1 NT Farmers' estimates of jobs and economic benefits

NT Farmers, in its Economic Impact Analysis, estimates:

- jobs directly constructing and operating cotton gins, plus
- jobs that the direct jobs will create (indirect jobs), plus
- jobs that the indirect jobs will create.
- salaries and value-add from jobs directly from constructing and operating cotton gins, plus
- salaries and value-add from jobs that the direct jobs will create (indirect jobs), plus
- salaries and value-add from jobs the indirect jobs will create.

The method relied on by NT Farmers overstates both jobs and their economic benefit. The Australian Government's *Guide to Economic Appraisal* warns that this method should not be used for determining the impacts and merits of economic proposals.²⁷ The Australian Bureau of Statistics explains that the method's:

*inherent shortcomings make [it] inappropriate for economic impact analysis. These shortcomings mean that [this method is] likely to significantly overstate the impacts of projects or events.*²⁸

The estimates by NT Farmers of job generation and economic benefit are based on a discredited method and are not credible.

²⁷ Australian Government: Infrastructure Australia. (2021). *Guide to economic appraisal: Technical guide of the Assessment Framework*. <https://www.infrastructureaustralia.gov.au/guide-economic-appraisal>

²⁸ Australian Bureau of Statistics. (2021). *Using I-O tables for analysis: Australian system of national Accounts: Concepts, Sources and Methods*. <https://www.abs.gov.au/statistics/detailed-methodology-information/concepts-sources-methods/australian-system-national-accounts-concepts-sources-and-methods/2020-21/chapter-22-input-output-tables/using-i-o-tables-analysis>

3.2 Price Waterhouse Coopers' estimates of jobs and salaries

The Price Waterhouse Coopers' job estimates are comparable with those for a new gin in the Kimberley, of 30 jobs for constructing and 31 jobs for operating the gin.²⁹

The Price Waterhouse Coopers salary estimates are of direct salaries only. This is a suitable method consistent with best practice Cost-Benefit Analyses.³⁰

The average salaries estimated by Price Waterhouse Coopers, compared to industry averages, are shown below (Table 2).

Table 2: Average salaries estimated by Price Waterhouse Coopers compared to the industry average

Activity	Average Salaries estimated by Price Waterhouse Coopers (\$)	Industry Average Salary ³¹ (\$)	Price Water Coopers estimate as a percentage of the industry average
Constructing the gin	121,053 ³²	73,875	164%
Operating the gin	44,129 ³³	28,900	153%

Average salaries given by Price Waterhouse Coopers for constructing and operating the gin are more than 50 percent higher than industry averages. This may be necessary to attract workers to the Northern Territory.³⁴ However, these salaries may be overstated. The average Northern Territory weekly wage is about the same as the National weekly wage.³⁵

Note that these higher wage estimates are not included in the costs in the Profitability section of this analysis.

Price Waterhouse Coopers estimate that there will be approximately 30 ongoing cotton industry jobs in the Northern Territory. This represents less than two percent of total agricultural jobs in the Northern Territory.³⁶

²⁹ National Australia Infrastructure Facility. (2023). *Kimberley Cotton Gin Project*. <https://www.naif.gov.au/our-projects/kimberley-cotton-kimberley-cotton-gin/>

³⁰ Australian Government: Infrastructure Australia. (2021). *Guide to economic appraisal: Technical guide of the Assessment Framework*. <https://www.infrastructureaustralia.gov.au/guide-economic-appraisal>

³¹ IBISWorld. (2024). *Cotton Ginning in Australia – Market Size, Industry Analysis (2024-2029)*. <https://www.ibisworld.com/au/industry/cotton-ginning/34/#IndustryStatisticsAndTrends>

³² Price Waterhouse Coopers for NT Farmers Association. (2019). *Business Case for the Construction of a Cotton Gin in the Northern Territory (Table 11)*. <https://ntfarmers.org.au/wp-content/uploads/2021/08/60321b63d7bd4778a95579680cac25f2.pdf>

³³ Price Waterhouse Coopers for NT Farmers Association. (2019). *Business Case for the Construction of a Cotton Gin in the Northern Territory (Table 25) and (Table 24)*. <https://ntfarmers.org.au/wp-content/uploads/2021/08/60321b63d7bd4778a95579680cac25f2.pdf>

³⁴ Deloitte Access Economics. (2023). *Economic valuation of the maritime, agribusiness, minerals, oil, and gas industries*. <https://www.deloitte.com/au/en/services/economics/analysis/economic-valuation.html>

³⁵ Northern Territory Government, Department of Treasury and Finance. (2024). *Average weekly full-time earnings: May 2024 – Economic brief*. https://treasury.nt.gov.au/_data/assets/pdf_file/0007/1432159/Average-Weekly-Earnings-2024-May.pdf

³⁶ ABARES. (2023). *ABARES Insights Issue 3, October 2023: Snapshot of Australia's agricultural workforce*. https://daff.ent.sirsidynix.net.au/client/en_AU/search/asset/1035161/0

3.3 Net benefit to the Northern Territory

The Northern Territory economy, including agriculture, suffers from skill shortages. There is a net migration of workers out of the Northern Territory.³⁷ Job vacancies in the Northern Territory are more than double the Australian job vacancy rate.³⁸

The total agricultural workforce in the Northern Territory is approximately 1,500 to 1,700 annual full-time equivalent workers.³⁹ Not all these jobs can be filled by Northern Territorians, or even Australians. More than 20 percent of the Northern Territory's seasonal agricultural jobs are filled by workers from outside Australia. For example, in 2024, an average of 328 short-term and 391 long-term Northern Territory agricultural jobs were filled through the Pacific Australia Labour Mobility scheme.⁴⁰

Workers on construction projects tend to leave the Northern Territory to seek employment in other States when projects are finished. Competition for construction workers disrupts other industries, driving up costs and drawing jobs from existing businesses.^{41, 42} It is unclear whether jobs relating to constructing and operating the gin will have an overall economic benefit to the Northern Territory.

Throughout Australia, the cotton industry typically relies heavily on seasonal workers travelling to remote locations, staying for the season, and returning home or to a new work site after the season is completed.⁴³ Fly-In-Fly-Out workers already comprise 6.3 percent of the Northern Territory workforce.⁴⁴

Imported seasonal workers tend to be a financial drain on communities, rather than adding economic value. Deloitte Access Economics reports:

*This outflow of workers has flow-on impacts, reducing the level of demand for consumer goods and services, and leading to a decline in industry and business demand overall.*⁴⁵

³⁷Deloitte Access Economics. (2023). *Economic valuation of the maritime, agribusiness, minerals, oil, and gas industries*. <https://www.deloitte.com/au/en/services/economics/analysis/economic-valuation.html>

³⁸Deloitte Access Economics. (2023). *Economic valuation of the maritime, agribusiness, minerals, oil, and gas industries*. <https://www.deloitte.com/au/en/services/economics/analysis/economic-valuation.html>

³⁹ ABARES. (2023). *ABARES Insights Issue 3, October 2023: Snapshot of Australia's agricultural workforce*. https://daff.ent.sirsidynix.net.au/client/en_AU/search/asset/1035161/0

⁴⁰ Department of Employment and Workplace Relations. (2024). *PALM scheme data: 3. Workers by state & stream*. <https://www.palmscheme.gov.au/palm-scheme-data>

⁴¹Deloitte Access Economics. (2023). *Economic valuation of the maritime, agribusiness, minerals, oil, and gas industries*. <https://www.deloitte.com/au/en/services/economics/analysis/economic-valuation.html>

⁴² Ogge. (2023). *The economic impact of gas development in the Northern Territory*. <https://australiainstitute.org.au/wp-content/uploads/2023/10/PI504-NT-fracking-economics-briefing-note-0811-WEB.pdf>

⁴³ Australia House of Representatives Standing Committee on Regional Australia. (2013). *Cancer of the bush or salvation for our cities? Fly-in, fly-out and drive-in, drive-out workforce practices in Regional Australia*. https://www.aph.gov.au/parliamentary_business/committees/house_of_representatives_committees?url=ra/fifodi-do/report.htm

⁴⁴Deloitte Access Economics. (2023). *Economic valuation of the maritime, agribusiness, minerals, oil, and gas industries*. <https://www.deloitte.com/au/en/services/economics/analysis/economic-valuation.html>

⁴⁵Deloitte Access Economics. (2023). *Economic valuation of the maritime, agribusiness, minerals, oil, and gas industries*. <https://www.deloitte.com/au/en/services/economics/analysis/economic-valuation.html>

A Parliamentary inquiry into the Development of Northern Australia concluded that:

*the use of [Fly-In-Fly-Out] FIFO workers undermines the growth and development of existing regional communities and places a drain on resources such as airports, roads and utilities without adequate return.*⁴⁶

It is unclear why the Northern Territory cotton industry expects a different employment model.

4 Cotton seed for cattle feed

Advocates for the cotton industry in the Northern Territory claim that the main interest in growing cotton is for cotton seed for cattle:

*We started growing cotton for the seed for cattle; that was the motivation. We are still motivated by the seed to feed the cattle, and we are looking at the fibre as a by-product mainly, but both products are very important.*⁴⁷

This seems implausible because;

- growing irrigated cotton mainly for seed is not financially viable without cotton lint,
- there are restrictions on feeding cotton seed to cattle, and
- several growers are sending cotton to be ginned in Queensland.

4.1 Financial viability of cotton seed and lint

The revenue for cotton lint is approximately \$594 per bale. The revenue for cotton seed is approximately \$93 per bale. The revenue for cotton lint is more than six times higher than the revenue for cotton seed.⁴⁸

4.2 Restrictions on feeding cotton seed to cattle

Cotton seed is fed to cattle as a supplement.⁴⁹

Chemical residues in cotton seed mean that there are some restrictions on its use as a livestock feed supplement, including notification of use, limits on the proportion of cotton seed in diets, and restrictions on stock it should be fed to.⁵⁰

⁴⁶ Joint Select Committee on Northern Australia. (2014). *Pivot North: Inquiry into the Development of Northern Australia: Final Report*. https://www.aph.gov.au/Parliamentary_Business/Committees/Joint/Former_Committees/Northern_Australia_44/P/Inquiry_into_the_Development_of_Northern_Australia/Tabled_Reports

⁴⁷ Grain Central. (2024). *Gin opening to drive cotton exports out of Northern Territory*. <https://www.graincentral.com/cropping/cotton/gin-opening-to-drive-cotton-exports-out-of-nt/>

⁴⁸ CottonInfo (2023). *Cotton Industry Gross Margins: GM Budget – Northern Australia Furrow Irrigated Cotton*. <https://cottoninfo.com.au/sites/default/files/inline-files/Northern%20Irrigated%2023-24.pdf>

⁴⁹ New South Wales Department of Primary Industries. (2017). *White cottonseed – a supplementary cattle feed*. https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0005/96008/white-cottonseed-a-supplementary-feed.pdf

⁵⁰ New South Wales Department of Primary Industries. (2017). *White cottonseed – a supplementary cattle feed*. https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0005/96008/white-cottonseed-a-supplementary-feed.pdf

It is recommended that cotton seed be limited to 15 to 20 percent of the total diet of cattle and 10 percent or less to developing bulls.⁵¹ The NSW Department of Primary Industries recommends that cotton seed makes up no more than 30 percent of total dry matter intake, even in severe droughts.⁵² Organic beef producers cannot use cotton seed.⁵³

4.3 Sending cotton for ginning in Queensland

One argument for the value of cotton seed grown in the Northern Territory is that it is expensive to buy seed outside the Northern Territory and freight it in:

Yes, there is a valuable byproduct in the lint, but they're producing the grain...and instead of carting it across at great expense from the cotton gin in Queensland, they can produce it on their own properties...Whilst cotton seed might be trading at 450 - 500 a ton at the moment, if it costs you 200 a ton to get it across the territory, that makes it a bit more valuable in the Territory.⁵⁴

This argument assumes that all cotton grown in the Northern Territory is ginned in the Northern Territory. However, this is not the case. Allan Myers, the Chairman of WANT Cotton, explained to the 2024 Australian Cotton Conference that some growers find the cost of using the Katherine cotton gin against their 'rational self-interest' and are instead shipping cotton 3,500 kilometres to Queensland.⁵⁵

It is implausible that these growers are paying additional costs for the cotton seed to be freighted back to the Northern Territory.

⁵¹ Rogers, Poore and Paschal. (2002). *Feeding cotton products to cattle*.

<https://www.sciencedirect.com/science/article/abs/pii/S0749072002000208?via%3DiHub>

⁵² New South Wales Department of Primary Industries. (2007). *Supplementary feeding of cattle*.

https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0011/96167/supplementary-feeding-of-cattle.pdf

⁵³ New South Wales Department of Primary Industries. (2017). *White cottonseed – a supplementary cattle feed*.

https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0005/96008/white-cottonseed-a-supplementary-feed.pdf

⁵⁴ Adam Kay. (2024). *NT Country Hour: Tue 20 Aug 2024 at 1:00pm*. <https://www.abc.net.au/listen/programs/nt-country-hour/nt-country-hour/104226642>

⁵⁵ Allan Myers. (2024). *Northern Territory Country Hour: Fri 9 Aug 2024*.

<https://www.abc.net.au/listen/programs/nt-country-hour/nt-country-hour/104180784>

5 Subsidies to the cotton industry

Much economic development in the Northern Territory is unviable without government assistance and investment.^{56, 57, 58, 59} The Australian Government is committed to developing this 'last frontier' into an 'economic powerhouse'.¹⁶⁰ The Australian and Northern Territory governments have made commitments to allow access to land and water, improve roads and communications, encourage employment and improve access to markets.⁶¹

Subsidies to the cotton industry in the Northern Territory were calculated using the following method:

1. identify general government subsidies,
2. annualise the subsidies, and
3. calculate the portion of the total subsidies that benefit the cotton industry.

Annualised subsidies were calculated using a discount rate of seven percent over 30 years as recommended in the Australian Government's *Guide to technical appraisal: Technical guide of the Assessment Framework*.⁶²

⁵⁶ Joint Select Committee on Northern Australia. (2014). *Pivot North: Inquiry into the Development of Northern Australia: Final Report*. https://www.aph.gov.au/Parliamentary_Business/Committees/Joint/Former_Committees/Northern_Australia_44/P/Inquiry_into_the_Development_of_Northern_Australia/Tabled_Reports

⁵⁷ Stokes et. al. (2018). *Costs, benefits, institutional and social considerations for irrigation development*. A technical report to the Australian Government from the CSIRO Northern Australia Water Resource Assessment, part of the National Water Infrastructure Development Fund: Water Resource Assessments. https://www.researchgate.net/publication/327971470_Costs_benefits_institutional_and_social_considerations_for_irrigation_development_A_technical_report_to_the_Australian_Government_from_the_CSIRO_Northern_Australia_Water_Resource_Assessment_part_of_th

⁵⁸ Ash et. al. (2017). *Irrigated agricultural development in northern Australia: Value-chain challenges and opportunities*. <https://www.sciencedirect.com/science/article/pii/S0308521X16308617>

⁵⁹ Australian Government. (2015). *Our North, Our Future: White Paper on Developing Northern Australia Overview*. <https://www.infrastructure.gov.au/sites/default/files/documents/nawp-whitepapersummary.pdf>

⁶¹ Australian Government. (). *Our North, Our Future: White paper on developing Northern Australia Overview*. <https://www.infrastructure.gov.au/sites/default/files/documents/nawp-whitepapersummary.pdf>

⁶² Infrastructure Australia. (2021). *Guide to technical appraisal: Technical guide of the Assessment Framework*. <https://www.infrastructureaustralia.gov.au/sites/default/files/2021-07/Assessment%20Framework%202021%20Guide%20to%20economic%20appraisal.pdf>

The portion of the subsidies that benefited the Northern Territory cotton industry was calculated on the basis of revenue, hectares grown, or bales (Table 3).

Table 3: Apportionment of subsidies to the Northern Territory cotton industry

Beneficiary of subsidy	Basis for attribution	Value	Cotton in the Northern Territory	Contribution of Northern Territory Cotton
Australian agriculture ⁶³	Revenue	71,000,000,000	203,250,000	0.29%
Northern Territory agriculture ⁶⁴	Revenue	767,000,000	203,250,000	26.50%
Australian cotton ⁶⁵	Hectares	594,000	54,000	9.09%
Northern Australian cotton ^{66, 67}	Bales	797,525	289,600	36.31%
Northern Territory Cotton				100%

Full details of the method, assumptions and subsidies used are shown in Appendix A.

Direct subsidies to cotton in the Northern Territory are shown in Table 4.

Table 4: Annualised direct subsidies for cotton in the Northern Territory

Direct subsidies	Annualised subsidy for cotton in the Northern Territory (\$ million)
Land	24.5
Water	13.4
Research and Development	2.6
Processing	1.5
Total	42.0

Annual subsidies to the Northern Territory cotton industry (\$42 million) are higher than Australian Government payments to the Northern Territory for Social Services and Welfare (\$25.3 million) in 2023.⁶⁸

⁶³ Australian Bureau of Statistics. (2022). *Value of Aussie Agriculture hits \$71 billion in 2020-21*.

<https://www.abs.gov.au/articles/value-aussie-agriculture-hits-71-billion-2020-21>

⁶⁴ Northern Territory Government. (2024). *2024-25 Budget Working for the Territory: Industry Outlook*.

https://budget.nt.gov.au/_data/assets/pdf_file/0006/1376961/2024-25-industry-outlook-book.pdf

⁶⁵ Australian Bureau of Statistics. (2023). *Agricultural Commodities, Australia*.

<https://www.abs.gov.au/statistics/industry/agriculture/agricultural-commodities-australia/latest-release#cereal-and-other-broadacre-crops>

⁶⁶ MITEZ Economic Development. (2021). *North Queensland Cotton Gin assessment and feasibility study*.

<https://mitez.com.au/wp-content/uploads/2022/02/North-Queensland-Cotton-Gin-Assessment-and-Feasibility-Study-Report.pdf>

⁶⁷ Alsop. (2023). *Ord gin build starts, NT's nears commissioning*.

<https://www.graincentral.com/cropping/cotton/katherine-gin-nears-commissioning-build-starts-at-kununurra/>

⁶⁸ Australian Government. (2024). *Budget Paper No. 3, Appendix B: Total payments to the states by function*.

<https://budget.gov.au/content/bp3/index.htm>

Improvements to roads and communications and access to export markets are identified as requirements to develop Northern Australia, but these have not been included in this analysis as subsidies to the Northern Territory cotton industry.⁶⁹ Government commitments in these areas include the \$4.9 billion Roads of Strategic Importance program, and \$1.5 billion towards infrastructure at the Darwin Port.^{70, 71}

5.1 Costs not included in the analysis in this analysis

The direct costs of the cotton industry in the Northern Territory outweigh its benefits. This is before other costs, not considered in this analysis, are included. For example:

- costs to other water dependent industries such as tourism, recreational fishing, commercial fishing, or other agriculture,
- costs of regulating water use and management, such as compliance with licensing and metering requirements, or
- externalities such as Cultural values or the environment.

6 Conclusion

Advocates of a cotton industry in the Northern Territory claim it will be profitable, generate jobs and economic benefits, and that its primary motivation is to grow cotton seed for cattle feed. None of these claims are plausible.

The industry asserts that most of the cotton grown will dryland. However, the industry's own financial analysis shows that, even with optimistic yield assessments, dryland cotton is not profitable and will return a significant annual loss across the industry.

To achieve the forecast gross revenue and make a profit, the amount of irrigated cotton will need to be double the area claimed.

Most estimates of jobs and their economic value are unable to be substantiated or are overstated. There is one credible estimate that has the industry generating 30 ongoing jobs per year to operate a cotton gin. However, that estimate claims an average salary about double the Australian average.

The estimates for jobs imply an overall net benefit to the Northern Territory, but are silent on addressing the challenges of filling new jobs without a transfer of existing Territorian jobs or bringing in workers from other States or countries.

⁶⁹ Australian Government. (2015). *Our North, Our Future: White Paper on Developing Northern Australia Overview*. <https://www.infrastructure.gov.au/sites/default/files/documents/nawp-whitepapersummary.pdf>

⁷⁰ Department of Infrastructure, Transport, Regional Development, Communications and the Arts. (n.d. est 2024). *Roads*. <https://www.infrastructure.gov.au/infrastructure-transport-vehicles/freight/roads>

⁷¹ Northern Territory Government. (2024). *Middle Arm Sustainable Development Precinct*. <https://invest.nt.gov.au/why-the-territory/infrastructure-and-strategic-land/middle-arm-sustainable-development-precinct>

The claims that the motivation for growing cotton is for cotton seed to feed cattle, with cotton lint as a secondary consideration are not credible. The revenue from cotton lint is more than six times the revenue from cotton seed. The chemical residue in cotton seed poses risks for cattle and human consumption. Recommended restrictions include that it should not make up more than 30 percent of total feed, even during severe drought.

The development of a cotton industry in the Northern Territory requires substantial government assistance as it is not financially viable with private investment alone.

The annual subsidy from Government exceeds the industry's forecast gross margin even before operating and financing costs or income tax.

That is, the benefits of developing the cotton industry in the Northern Territory do not come close to matching its costs. This is before considering the costs to other water-dependent industries that could be displaced by cotton, or the significant non-economic costs to Cultural values or the environment.

The Australian and Northern Territory governments should undertake a thorough investigation of the cotton industry in the Northern Territory, make it publicly available, and have it reviewed independently. This should be done in accordance with best-practice regulation and guidelines set out by the Office of Impact Analysis in the Department of Prime Minister and Cabinet.