Australian Government
Cotton Research and Development Corporation

CGA FINAL REPORT

Part 1 - Summary Details

Please use your TAB key to complete Parts 1 & 2.

CRDC Project Number: **CGA: Mungindi Cotton Growers**

Project Title: In field research comparing dryland cotton to dryland sorghum on various row configurations (2nd year)

Project Commencement Date: 1/08/2016 **Project Completion Date:** 30/06/2017

Part 2 – Contact Details

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Part 3 – Final Report

Background:

Growers within the Mungindi Cropping Group felt there was a need to identify profitable summer crop options to be grown under dryland conditions in the western growing regions. Whilst winter crop rotations are being used to assist in the reduction of issues such as crown rot and root lesion nematode the addition of a summer crop could add further benefit to the farming system from both a sustainability and profitability point of view.
The project is now in its second year.

Objectives:

Provide research data to support growers in identifying pathways to incorporate summer crops as a means of improving farming systems efficiency.

Methods:

In order to achieve the desired outcome 2 sites (South Bunarba & Bullawarrie were chosen.) One site on the eastern side of Mungindi and one to the west of Mungindi. The intention was to have 2 sites in order to get 2 sets of data possibly with different rainfall patterns and hence yield results.

We planned to plant main season cotton and main season sorghum and a later planted cotton and later planted sorghum at both sites but due to the lack of planting rain we didn't get a later planted sorghum or cotton at either site.

Trial Detail:

The 3 configurations of sorghum planted were solid, single skip and double skip
The 3 configurations of cotton planted were single skip, double skip and super singles.
The trial consisted of 4 reps of each configuration for both sorghum and cotton.

South Bunarba (Site 1)

Starting moisture: 160mm
In crop rainfall 92mm

Sorghum Variety: MR Bazley

Sorghum Planting Date: 18/10/2016
Sorghum Harvest Date: 29/03/2017

Cotton Variety: Sicot 714BRF
Cotton Planting Date: 18/10/2016
Cotton Picking Date: 10/04/2017

Bullawarrie (Site 2)

Starting moisture: 160mm
Incorp rainfall: 111mm

Sorghum Variety MR Bazley

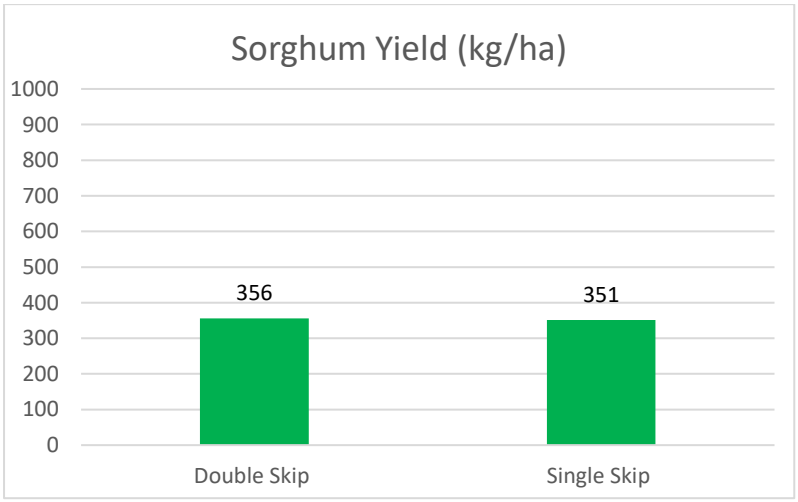
Sorghum Planting Date: 10/10/2016
Sorghum Harvest Date: Not harvested. Failed due to lack of in crop rainfall

Cotton Variety: Sicot 714 BRF
Cotton Planting Date: 10/10/2016
Cotton Picking Date: 21/04/2017

Figure 1: Location of Trial Sites

Outcomes*:*

Figure 2: South Bunarba Sorghum Yields



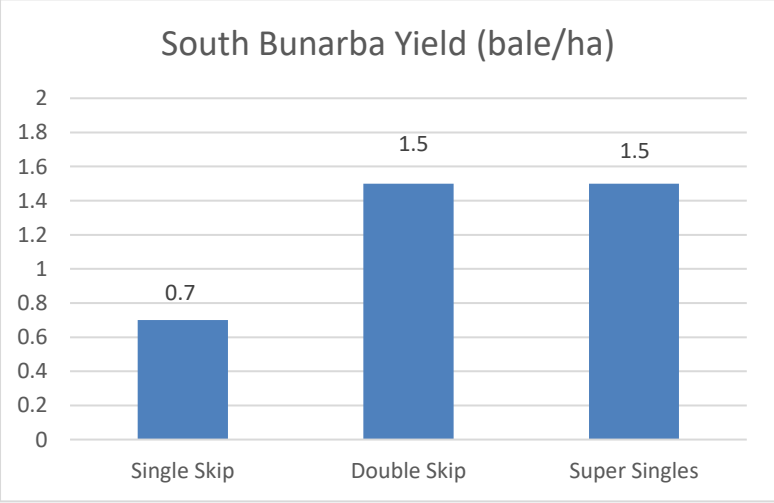
Solid planted sorghum was not harvested as there was no grain present.
Double Skip sorghum yielded 356kg/ha and Single Skip sorghum yielded 351 kg/ha

There was very little difference in the yields between the 2 configurations.
As can be seen in Figure 3 below both resulted in a negative gross margin.

Figure 3: South Bunarba Sorghum Gross Margin.

Variable Costs	Row Configuration		
	Solid	Single Skip	Double Skip
Seed	43	28	22
Planting	37	37	37
Pre Plant Herbicide (Atrazine & Dual)	23.16	23.16	23.16
Insecticide (no insecticide used)	0	0	0
Desiccant (crop wasn't sprayed out)	0	0	0
Harvest	40	40	40
Total	143.16	128.16	122.16
Sorghum Price $180.00/tonne			
Sorghum Yield	0	351	356
Net Return	0	63.18	64.08
Gross Margin	-$143.16	-$64.98	-$58.08

Figure 4: South Bunarba Cotton Yields

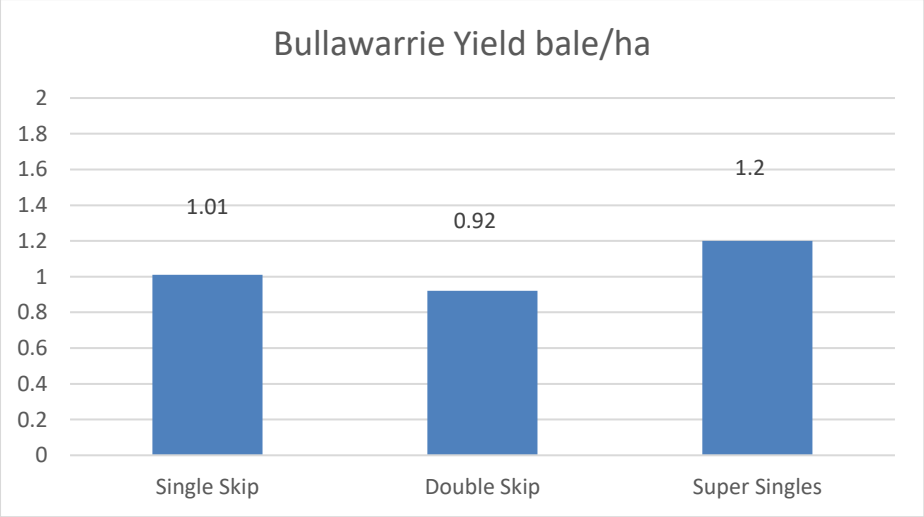


South Bunarba cotton was picked with a cotton stripper and each rep weighed using picker scales.
Single skip averaged 0.7bales/ha, double skip and super singles both averaged 1.5 bales/ha.
Samples of cotton from each configuration have been sent away to determine quality with no results available to date.
South Bunarba cotton trial was also negatively impacted on by 24D in January.

Figure 5: South Bunarba Cotton Gross Margin.

Variable Costs		Row Configuration		
		Single Skip	Double Skip	Super Singles
Seed		94	62	47
Planting		37	37	37
Pre plant herbicide		17	17	17
Roundup Ready Herbicide		25	25	25
Insecticide		50	50	50
Defoliation		11	11	11
Picking		250	200	200
Monsanto Licence	$50/bale	35	75	75
Slashing/Mulching		20	20	20
Ratoon control		17	15	12
Total		556	512	494
Cotton Price($/bale)		500	500	500
Cotton Yield (bale/ha)		0.7	1.5	1.5
Net Return		350	750	750
Gross Margin		-$206	$238	$256

Figure 6: Bullawarrie Cotton Yields



Bullawarrie cotton trial was handpicked.

Single skip averaged1.01 bales/ha, Double skip averaged 0.92bales/ha and super singles averaged 1.2 bales/ha
Samples of cotton from each rep have been sent away to determine quality with no results available yet.

Figure 7: Bullawarrie Cotton Gross Margin

Variable Costs		Row Configuration		
		Single Skip	Double Skip	Super Singles
Seed		94	62	47
Planting		37	37	37
Pre plant herbicide		17	17	17
Roundup Ready Herbicide		25	25	25
Insecticide		50	50	50
Defoliation		11	11	11
Picking		250	200	200
Monsanto Licence	$50/bale	50.5	46	60
Slashing/Mulching		20	20	20
Ratoon Control		17	15	12
Total		571.5	483	479
Cotton Price($/bale)		500	500	500
Cotton Yield (bale/ha)		1.01	0.92	1.2
Net Return		505	460	600
Gross Margin		-$66.50	-$23	$121

2016 -2017 proved to be very tough summer for growing dryland crops as can be seen by the yields achieved in both sorghum and cotton.
When quality results are received we will be able to assess whether there is a difference between configurations and what the discounts/ premiums will equate to.

Whilst accumulative day degrees for a crop planted early to mid-October were well down on average in mid-December by the end January it was a different story. Extreme heat in January and February with 5 weeks of top temperatures exceeding 42° Celsius resulted in the season having the most accumulative day degrees in the past 6 years.
This coupled with very limited summer rainfall proved challenging for the trial.

Throughout the season a field day was held at each site. The field day at Bullawarrie was held on 16th of February with 15 growers in attendance. We also had a representative from the Dryland Grower Group to discuss various projects the dryland group are involved in and the possibility of growers in the Mungindi region being involved. The field day at South Bunarba on 2nd of March attracted 43 growers, agronomists and industry representatives.

Whilst looking at the trial we also used the field day as an opportunity to focus on spray drift management. Mary O'Brien was our guest speaker along with representatives from Northern Grower Alliance discussing herbicide options for use in camera sprayers. Namoi and QLD cotton provided a market overview and a representative from the Dryland Grower Group was on hand to discuss the defoliation and picking of dryland cotton.

Both field days received positive feedback and growers were interested in comparing the 2 sites in terms of how the crops had coped with the summer.

Budget:

Please list expenditure incurred. ***(Double click inside the table to enter the data)***

Date	Description	Amount excl GST	GST	Total
30/11/2016	Soil Samples to determine PAW, Nematode			
	and crown rot levels			1,000.00
31/01/2017	Phenoxy Herbicide Testing			800.00
30/05/2017	Herbicide, Insecticide, Defoliant			2,700.00
30/06/2017	Trial Co Ordination/ Travel			5,500.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
			TOTAL	**10,000.00**

Conclusion:

This year's results due to the season have been disappointing in terms of yield but the trial overall has attracted a lot of interest and attention from growers and industry. The majority of growers in attendance at both field days either had dryland cotton planted or would consider dryland cotton over sorghum as a summer crop. The opportunity for dryland cotton in the area is increasing as growers look to summer crops in order to rotate their farming systems.

Extension Opportunities:

The results will be presented to the Mungindi Cropping Group at an update meeting in the 13th of August in Mungindi. This annual meeting is held to present any local research results to growers and agronomists. Last year's meeting attracted people from Moree, Goondiwindi and St George as well as the local region.

Results will also be compiled with the previous year's data into a document for distribution to the wider cotton community