



# Varieties Containing Bollgard 3 Long Term Performance

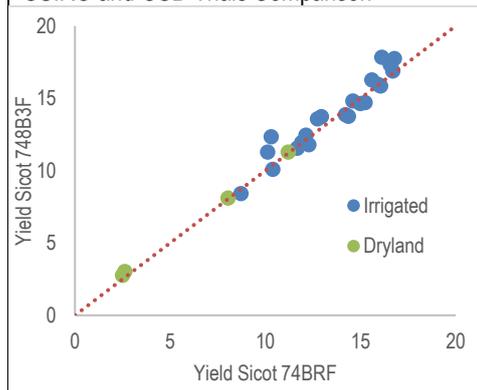
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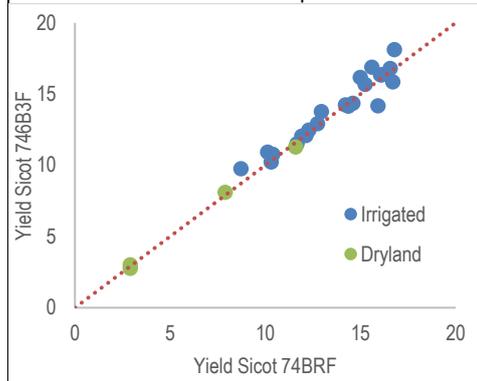
## Varieties Containing Bollgard 3® Long-Term Performance:

The 2016/17 season saw the wide scale commercial release of 5 varieties containing the Bollgard 3 technology. The uptake of these varieties has

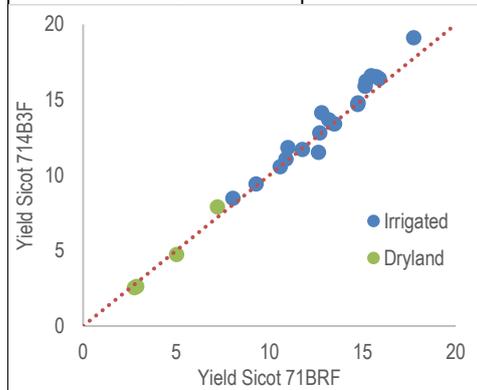
**Figure 1:** Direct comparisons between new varieties containing Bollgard 3 and the recurrent parent.  
**Sicot 748B3F** (23 Irrigated, 4 Dryland)  
CSIRO and CSD Trials Comparison



**Sicot 746B3F** (23 Irrigated, 4 Dryland)  
CSIRO and CSD Trials Comparison



**Sicot 714B3F** (20 Irrigated, 4 Dryland)  
CSIRO and CSD Trials Comparison



been unprecedented with 91% of the area grown to cotton last season being one of the new release varieties. The season has been a challenging one for the growers and consultants with a cool wet start followed by one of the hottest summers ever experienced. Due to the extremes, it may be hard to get a realistic sense of the performance of these new varieties.

### Why has there been a huge uptake of varieties containing Bollgard 3?

**Yield Potential:** Historically when new varieties with improvements in technology classes have been released they are a step behind the current commercially available varieties. Fortunately, the variety releases in 2016 are equal to or better than the recurrent parent variety. Over the five years of both CSIRO trialing and

CSID variety trials has shown an improvement of Sicot 748B3F and Sicot 746B3F of 1% over Sicot 74BRF. Considering the long-term performance of Sicot 74BRF as well as this variety's versatility this is an outstanding achievement by the CSIRO breeding program. Sicot 714B3F has shown a 4% increase on Sicot 71BRF which takes this varieties yield potential to a similar level of Sicot 74BRF. Sicot 754B3F has the same yield potential as Sicot 75BRF.

Figure 1 shows the results of up to 23 CSIRO and CSD replicated trials over the past five years where there have been direct side by side comparisons between the new variety and the recurrent parent. Plotted on the one to one line results on the left-hand side are trials where the new variety out yielded the recurrent parent. As is clearly demonstrated that across a large data set spanning small and large scale trials the new varieties show either equal yield or an improvement in yield potential.

In dryland farming systems, there is a similar trend. The green dots in figure 1 shows the results of the dryland trials spanning 4 years. The CSD E&D team have also been encouraged by the fibre quality resilience under the harsh conditions experienced during the 2016/17 season within the industry but also within the variety trial program.

### Working Within the refuge requirements:

The reduction in refuge requirement under the revised Bollgard 3 RMP, also benefits the overall yield of the farm. If you consider the additional cotton area grown contributes to improvements in total cotton production. In the example of Table 1 the average trial yields of Sicot 748B3F, Sicot 746B3F and Sicot 74BRF. Depending on the refuge choice being either pigeon peas or unsprayed cotton. There is a 4.7 to 9.9% improvement in cotton production within the field boundary. Working to the logical conclusion of this example the yield of the Bollgard II® varieties would need to be yielding in excess of 105% of the Bollgard 3 to be competitive.

**Table 1:** Desktop analysis of the impact of the reduction of refuge on farm yield potential.

	Sicot 748B3F		Sicot 746B3F		Sicot 74BRF	
Ave. Yield (CSD VPC)	12.61		12.36		12.11	
Refuge Option	2.5% P.Pea	5% RRF	2.5% P.Pea	5% RRF	5% P.Pea	10% RRF
	12.29	11.98	12.05	11.74	11.51	10.90
Ave. Yield of 100Ha	6.7%	9.9%	4.7%	7.7%		
Overall increase in Yield						

### Improvements in disease tolerances:

Apart from being highly resistant to bacterial blight the new variety releases containing Bollgard 3 technology have shown a marked improvement in the two major diseases impacting on production within the Australian cotton farming environment. All have a significant shift in the fusarium ranking with Sicot 754B3F (155) being a stand out with Sicot 746B3F (139) recording a ranking similar to Sicot 75BRF which was the most tolerant commercially available variety. In regard to verticillium wilt Sicot 714B3F and Sicot 707B3F have class leading tolerances at 113 and 112 respectively which have shown field level differences in stem cutting trials as well as influencing yield potential in known high verticillium fields.

COMPILED BY THE CSD EXTENSION & DEVELOPMENT TEAM, FOR MORE INFORMATION CONTACT

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