

# REPLANT DECISION MAKING IN GRAIN SORGHUM

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## KEY POINTS

- ▶ Healthy stands of grain sorghum can compensate for low plant population.
- ▶ Plant stands as low as two plants per square metre are capable of achieving yields up to five tonnes per hectare.
- ▶ Plant number **is not the key criteria** for replant decisions.

### Growers must consider the following:

- Soil water content of the soil
  - Soil nitrogen available
  - Plant health
  - Even plant spacing: long gaps in the stand reduce competition for weeds
  - Even plant development
  - Seasonal Forecast
  - Cost of replant
  - Opportunity to replant
  - Commodity price
- ▶ An accurate measure of the plant stand is needed before any decision can be made on the viability of the paddock.
  - ▶ At least five separate sample points are needed and two lots of 20 linear metre counts should be done at each sample point. The total plant number needs to be recorded at each sample point, also note the spacing between plants as gaps greater than one metre will cause uneven flowering and allow weeds to flourish.
  - ▶ Diseased seedlings are less likely to cope with stress later in the growing season and will develop more slowly.
  - ▶ Uneven development of established seedlings can be hard to manage; flowering can be extended by up to two weeks; increasing the risk of midge attack. Harvest will also be delayed.
  - ▶ Given the favourable seasonal outlook fields with good soil moisture and fertility may need replanting even when plant populations is at 35-40,000 plants/ha, especially if growth is very uneven or grass weeds have come up with the crop.

**REPLANT YIELD PROBABILITY SIMULATION OVERPAGE** →

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# REPLANT YIELD PROBABILITY SIMULATION

Below is the seasonal yield probability for a replant situation for grain sorghum at three plant populations.

- ▶ The simulation is based on 100 years of weather data from the Millmerran weather station.
- ▶ The first crop was planted on September 27, 2011 with 180mm of soil water and 135kg of Nitrogen.
- ▶ The replant date is October 21, 2011 and compares six plants per metre and eight plants per metre.
- ▶ The simulation assumes plants are healthy, given the favourable outlook the replant has a high chance of exceeding the original planting. *Simulation provided by Yield Profit.*

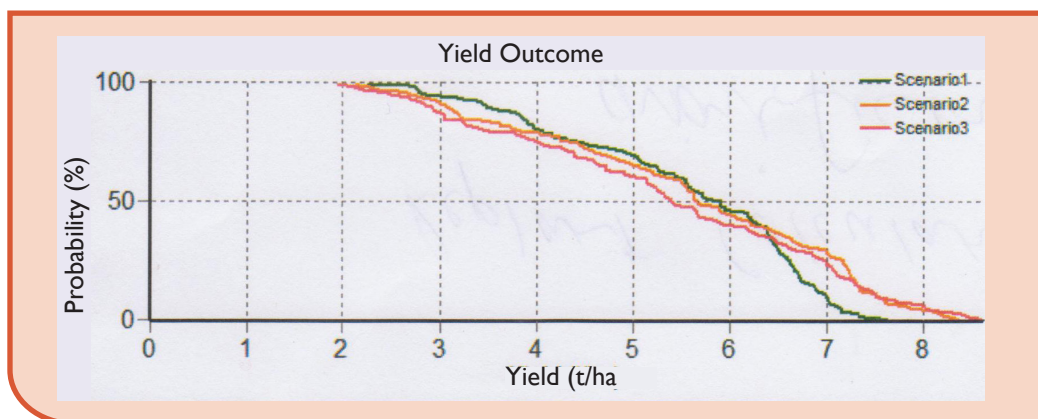
**Report name:** Pacific Seeds Millmerran Sowing x Variety Report  
**Report date:** 14/10/2011  
**Last climate date available:** 12/10/2011  
**Client name:** TPHILP  
**Paddock name:** PACIFIC SEEDS Millmerran  
**Rainfall records used:** Weather station

**Soil type:** Black Vertosol-Anchorfield (Brookstead No006)  
**Maximum rooting depth:** 180cm  
**Roots constrained by EC:**  
**Start of growing season:** 01 April  
**Initial conditions date:** 07 October  
**Growing season rainfall to date:** mm

	Scenario 1:	Scenario 2:	Scenario 3:
Sowing Date:	27/09/2011	21/10/2011	21/10/2011
Crop Type:	Sorghum	Sorghum	Sorghum
Variety:	MR-Buster	MR-Buster	MR-Buster
Sowing density (plants/m <sup>2</sup> )	4	6	8
First commencement of flowering (Z60)	14-Dec	26-Dec	26-Dec
Median commencement of flowering (Z60)	20-Dec	2-Jan	2-Jan
Last commencement of flowering (Z60)	28-Dec	14-Jan	14-Jan

Percentage of years in which frost occurs	Scenario 1:	Scenario 2:	Scenario 3:
Mild: Minimum temperature between 2 and 0°C during flowering (Z60-69)	0%	0%	0%
Moderate: Minimum temperature between 0 and -2°C during flowering and early grain fill (Z60-75)	0%	0%	0%
Severe: Minimum temperature less than -2°C during flowering and grain fill (Z60-79)	0%	0%	0%

Percentage of years in which heat shock occurs during grain fill (Z70-79)	Scenario 1:	Scenario 2:	Scenario 3:
Mild: Maximum temperature between 32 and 34°C	0%	0%	0%
Moderate: Maximum temperature between 34 and 36°C	0%	0%	0%
Severe: Maximum temperature above 36°C	0%	0%	0%



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