



## Project Snapshot

<b>Land Manager Names:</b>	<b>Mark Granich / John &amp; Tim Butcher Toll Temby / Wayne &amp; Clint Della Bosca</b>
<b>Location:</b>	<b>Shire of Yilgarn</b>
<b>Annual Rainfall (mm):</b>	<b>290 mm</b>
<b>Enterprise Mix:</b>	<b>Cropping and livestock</b>
<b>Soil Types/Vegetation Types:</b>	<b>Mixture of yellow sand, grey clay to heavy red loam</b>
<b>Local Community Group:</b>	<b>Bodallin Catchment Group</b>

Above  
Clint Della Bosca

## Key Messages

- More frequently farmers are being faced with dry starts. More needs to be known about the implications of seeding conditions, seeder bar set up and application rates to improve crop yield potential in these years.
- Seasonal variability and soil type has a significant impact on crop yield results. There are also many other variables that impact crop development and these areas need further research.

## Their story

The Bodallin Catchment Group was formed to bring farmers within the Yilgarn region together to discuss and trial areas of interest. Dry seeding, was one recent area of interest given the last few seasons have recorded below average rainfall and kicked off without sufficient breaking rains. So when the group heard about Wheatbelt NRM's Soil Conservation Incentives Program they decided to apply for funding to conduct a project testing different dry seeding techniques. Four willing farmers became a part of this project, they were:

Mark Granich from Moorine Rock, tested dry and wet seeding whilst testing different seeding speeds on light sandy soil;

John and Tim Butcher from Noongar, tested dry and wet seeding whilst sowing inter and intra furrow on red clay soil;

Toll Temby from Bodallin, tested dry and wet seeding whilst testing different press wheel pressures on grey clay/heavy red loam soils. The four weight settings were: 0 kg, 400 kg, 800 kg and 1,000 kg; and Wayne and Clint Della Bosca from Southern Cross, who tested dry and wet seeding whilst testing the use of a soil wetter (GLE Precision Wetter).

From this project the hope was to provide discussion points about the difficulties, benefits and risks of dry seeding techniques and set up at seeding.

## Trial results

### Granich: Testing speed and nitrogen

Mark Granich dry seeded wheat on 4th May 2012 and wet seeded wheat on the 8th of June 2012. Nitrogen application occurred on both plots on the 5th July 2012 using a Flexicol 820, with 9 inch spacing, knife point and press wheels.

During emergence the 12 km/h and 10 km/h sown strips looked better than the strips sown at 8 km/h. The possible reasoning is that the higher speed increased soil aeration, assisting seed growth.

The plot dry seeded at 10 km/h yielded the largest tonnage, but this was not significantly different to the other dry sown wheat yields. On average, however, the dry sown treatments yielded 200 kg more than the wet sown treatment. This is likely due to the lack of finishing rains preventing the development of the wet sown crop weed growth.

Soil Moisture	Average Speed	Yield (t/ha)
Dry seeded	8 km/h	0.98
	10 km/h	1.01
	12 km/h	1.00
Wet seeded (control)	10 km/h	0.80

Also trialled by Mark were various nitrogen levels (50 kg/ha and 100 kg/ha) which were applied on the 5th of July 2012 and compared to a control of (0 kg/ha N). For both the dry and wet sown treatments, the application of 100 kg/ha of nitrogen yielded the highest. In terms of the wet sown crop the high nitrogen application also seemed to allow the crop to compensate for the short growing season, as it yielded 1.15 t/ha, a 64% increase compared to the control.

Nitrogen (N) rate	Yield (t/ha)	
	Dry seeded	Wet seeded
0 kg/ha	0.85	0.70
50 kg/ha	0.84	0.82
100 kg/ha	1.05	1.15



Above: Dave Minkey (WANTFA) and John Butcher (Yilgarn Farmer). Photo courtesy of L.Celenza (WANTFA).

### Butcher: Testing in-row & inter-row sowing

John and Tim Butcher dry seeded wheat on the 28th of April 2012 and wet seeded wheat on the 26th of May using a DBS tyne seeder. The early sown, dry seeded wheat suffered from drought stress early on and therefore plant establishment and crop biomass was reduced. It should be noted that take-all root disease was present and stubble build-up on in-row treatments. All the grain made grade AH1, though the early sown, dry seeded wheat had higher screenings (2.5%) than the late sown, wet seeded wheat (0.63%). There was little variance in yields, however, the in-row wet seeded treatment yielded the highest (0.38 t/ha).

Soil Moisture	Treatment	Yield (t/ha)
Dry seeded	In-row	0.36
	Inter-row	0.36
Wet seeded	In-row	0.38
	Inter-row	0.35



Above: Dry seeded on the right and wet seeded on the left.

### Temby: Testing varying press wheel pressures

Toll Temby attempted to dry seed 45 kg/ha of wheat on the 3rd of June 2012, though approximately 10 mm fell the day prior. He then wet seeded 45 kg/ha of wheat on the 12th of June 2012 after an additional rainfall of approximately 25 mm. He used (parallelogram) press wheel pressures of 0 kg, 400 kg, 800 kg and 1000 kg on his JD1890 Air Hoe Drill to test crop performance in a paddock characterised by grey clay to heavy red loam.

The rainfall in June was enough to overcome any limitation by the press wheel pressure to maintain the soil to seed contact. This was verified by the plant density being similar over all plots. Although there was little variance in yields, the plots seeded in early June (referred to as having a wet soil profile in the table) with 800 kg and 1000 kg press wheel pressures produced the largest yields at 0.46 t/ha and 0.47 t/ha, respectively.

Press wheel pressure	Yield (t/ha)		Average (t/ha)
	Wet soil profile	Saturated soil profile	
0 kg	0.40	0.45	0.425
400 kg	0.43	0.40	0.415
800 kg	0.46	0.43	0.445
1000 kg	0.47	0.44	0.455



Above: Bodallin Catchment Spring Field Day: Dave Watson explaining the results.

## Della Bosca: Testing varying soil wetter rates in-row and inter-row

Wayne and Clint Della Bosca seeded wheat into canola stubble on the 16th of May 2012 using a Conservapak after no April rain and only 13 mm over three rainfall events in the first half of May. The trial site was made up of Kellerberrin/Goldfields clay and the total area harvested was 3.2 ha.

The wetting agent cost \$6.75/litre and produced a yield increase across all treatments. For the dry in-row sown wheat the most effective application at the lower water rate (50 L) was 2 L/ha (100 kg higher than the control), while at the higher water rate (100L ) the 1 L/ha and 3 L/ha rates were the most effective. Given the poor season (drought) the gross margin returns were minimal, though the in-row dry sown crop with 2 L/ha 50 L volume had the highest return on investment (\$17.40/ha) based on a \$300 farm gate wheat price. This treatment also had an increased yield compared to the control of 42%.

Soil wetter application	Yield (t/ha)	
	In-row	Inter-row
Control (0 L/ha)	0.25	0.81
1 L/ha/50 L Vol	0.92	0.93
2 L/ha 50 L Vol	1.12	0.98
3 L/ha 50 L Vol	0.95	0.97
Control (0 L/ha)	0.79	-
1 L/ha/100 L Vol	1.13	-
2 L/ha 100 L Vol	1.00	-
3 L/ha 100 L Vol	1.08	-



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