Plain English Summary

Project Title:	**Furrow formation and Inter-row Compaction (FFIC) for Improved Wheat Production in Water-limited Environments of the Wheatbelt of WA**
GRDC Project No.:	**DAW00254**
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Objectives	To test the effect of compacted inter-rows on water harvesting, production and profitability in a low rainfall wheatbelt environment.
Background	Through Mr Callum Wesley's preliminary trials earlier and in the 2013 season, it is understood that the Furrow Formation Inter-row Compaction technology increases water harvesting thereby increasing crop production under low rainfall conditions. Prototype inter-row compaction wheels were shown at the Merredin Research Station field day in 2013. More wheels were made with four row spacings to fit a cone seeder in 2014 and a site at Merredin Research Facility and Southern Cross was sown to wheat.
Research	A canola trial was sown at Merredin and a wheat trial was sown at Southern Cross in 2015 with various treatments including row spacings of 300, 375 and 460mm, with and without, furrow forming wheels behind the cone seeder. It was planned to sow a trial at Mullewa as well but the GRDC/DAFWA contract was held up and was eventually signed too late for useful trials to be sown. Yields at both sites were low due to a very dry spring and there was little difference between treatments. A large rain event in March may have reduced the potential impact of water harvesting with the wheels at both sites as the soil water profile would have been more full than normal at the start of the season.
Outcomes	At present using a limited set of one or two test locations, there has been inadequate time and seasonal conditions to critically test wheat grown with and without inter-row compaction. Options are presented for further critical evaluation of this water harvesting technology.
Implications	Very little differences were found in the experimental trials with and without inter-row compaction in 2015 due to localised seasonal conditions. However another site at Southern Cross where inter-row compaction was used with barley resulted in grain yields up to 2.5t/ha. There was also an indication from black plastic over inter-rows at Southern Cross, that water harvesting can potentially double wheat grain yields from 0.8 t/ha to 1.6 t/ha. The latter highlights that the benefits of compacted inter-rows could potentially be maximised using a water-harvesting, spray-on polymer on the compacted inter-row.
Publications	Wesley C., G. Riethmuller, E. Barrett-Leonard and T. Setter (2015). Furrow formation and Inter-row Compaction (FFIC) for Improved Wheat Production in Water-limited Environments of the Eastern Wheatbelt of WA. Agribusiness Crop Updates, Crown Perth, 24-25 Feb.