

FINAL REPORT

CSP00098

Exploratory Practices Research in the Western Region

PROJECT DETAILS

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PROJECT TITLE: EXPLORATORY PRACTICES RESEARCH IN THE WESTERN REGION

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Summary

Water repellency and its expression under different tillage and stubble managements was evaluated to investigate anecdotal evidence that water repellency "disappears" under zero-tillage and stubble retention. Our findings after just one year of field experiments indicate that at one site, where 2 burning events have occurred, burning crop residues significantly reduced soil C and soil water repellency. Crop residues are a source of waxes that can cause repellency. However, our experiments showed that despite greater soil water repellency under zero-till and stubble retention, water infiltration was improved compared with other stubble/tillage managements. At two other sites, where only one year of treatment has been imposed, there are trends but few significant responses.

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Outcomes

Background

Observations from long-term zero/no-till paddocks on water repellent sandy soils on the south coast of Western Australia suggest benefits for crop growth due, at least in part, to better water infiltration. But this contradicts other findings that show the addition of organic materials to soil increases the severity of water repellency. No-till farming has been extensively adopted in WA for various reasons including the protection of fragile soils from wind and water erosion. Integration of management of non-wetting soils in the framework of these practices should provide significant benefits to the industry.

Objective

To investigate tillage practices and stubble management on the expression of water repellency in sandy soils in cropping regions of WA