

Crop establishment for better wintering outcomes

Background

Maintaining soil structure and strength is one potential way in which pugging could be decreased in intensive winter cropping systems. Conventional cultivation is still commonly used to establish many winter crops, particularly fodder beet, because of the high cost and risk associated with crop failure or lower than expected crop yields.

The aim of the project was to test whether utilising minimum till methods (strip tillage or direct drilling) to establish winter forage crops could maintain soil structure and strength, thereby decreasing pugging and improving animal welfare during winter grazing when compared to conventional cultivation.

Key messages

- For all establishment methods, successful establishment is determined by paddock conditions at the time of planting and follow up agronomic practices such as weed and pest control.
- Although minimum till options may appear to be more environmentally sustainable (from a carbon and soil structure perspective), observations from this study were of lower yields, greater weed burdens, and increased pest pressure. An unintended consequence of minimal till establishment was the increased need for chemical weed and pest control to help achieve more sustainable yields.
- To provide better soil conditions for animals, where practicable, wintering should be undertaken on soils that are more resistant to waterlogging and pugging
- Ensuring that the people implementing the winter plan, i.e., those shifting the breaks and feeding the cows, also understand the plan is critical for better wintering outcomes.
- A tension exists between maximising crop yields and protecting soils. Lower yields result in a lower stocking density and subsequently lower animal grazing days/ha and lower nutrient loading. However, impending rules limiting winter cropping areas are likely to drive higher crop yields and increased stocking density.
- Water pooling is a key indicator for farmers to know when to implement their Plan B or contingency plans such as removing stock from a crop paddock. The firmer soils with minimum till establishment increased the risk of surface water pooling during heavy rainfall events. So, while we may be reducing pugging and keeping cows above ground, the water pooling will impact their lying behaviour.
- **Establishment method is not going to be a silver bullet for poor crop husbandry or lack of attention to detail over the grazing period. Daily management of the stock had the biggest impact on paddock conditions and cow behaviour.**

Based on the observations from this study there are four critical steps for farmers when planning their winter cropping:

1. Good paddock selection, preparation, and agronomic practices to achieve optimum crop yields
2. Involving all the farm team in the planning and implementation process so they understand the 'why'.
3. Implementing good management practices to maximise the time animals spend in better grazing conditions, including use of portable water troughs and back fencing.
4. Having a Plan B that everyone involved with wintering knows when and how to implement.

Detailed results available in the July 2022 Field day handout.