

Focus Paddock Report

Impact of autumn irrigation on canola yields under both overhead and surface irrigation

Prepared By

Irrigation Discussion Group

Acknowledgements

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Focus Paddock Summary

The project aimed to look at the impact of autumn irrigation in establishing canola plant population and increasing biomass. The 2021 season had consistent rain that impacted the “drought” effect we were looking for in canola. The overhead irrigation applied in autumn did not impact yield throughout the season, whereas the surface applied irrigation negatively impacted yield due to water logging of the canola.

Seasonal forecast is a significant driver in deciding to autumn irrigate canola for establishment and growth in the May – August growth stage.

This work needs to be repeated in multiple seasons to see the impacts and inform grower decisions regarding autumn irrigations.

Background & Paddock Aims

The Group in reflection of the season of 2020 noticed an impact on Canola yield due to the dry start to the season. They reflected upon a recent talk some had attended of Rohan Brill where he discussed the “winter drought”.

Rohan discussed the impact of delayed establishment in biomass and yield losses overall.

The group decided to look at the impact the autumn watering of canola has on yield potential in both overhead and surface irrigation systems. Overhead allows a smaller amount of water to be applied to help establish the crop however it can be affine line on how much to apply to fill the profile. The surface irrigation applies a full profile and can not be altered, and if rain events occur this can log the crop and have negative effects.

Focus Paddock Details

Location	Mayrung & Finley
Crop type	Canola
Irrigation system	Overhead 35°33'17.8"S 145°36'28.8"E Surface 35°37'01"S 145°34'58"E

Methodology including:

Overhead Irrigation

Growers leave 100m section of overhead lateral with no water in the autumn and measure yield with header at end of season, all in crop treatments to remain the same for season. All spring waterings to be applied across the whole field.

Surface Irrigation

Grower to water one bay of Canola in the autumn and leave one bay not watered in the autumn. All crop treatments to be the same and watering in the spring to be the same across both areas.

Farmers in the district are reluctant to water up Canola in a surface system, most will apply a small portion in an overhead system.

Agronomic results

Overhead



The area denoted by the red square represents the area not watered under the overhead.

As seen on the map the yield does not vary, the average yield of 3.09-3.44 is consistently seen.

Surface

Yield data captured for the area with the autumn watering was 1.814 t/ha and the yield for the area with spring only watering is 2.4619 t/ha

The District average for irrigated Canola was 3.1t/ha, this was consistent with the yields obtained under the overhead system, the yield on the surface irrigation were lower then average however evident that the autumn irrigated canola suffered further due to water logging.

Key learnings & recommendations

The 2021 season was a wet winter which allowed for optimal growing conditions and did not allow for the “winter drought” environment to exist.

We noted that there was no difference between the Autumn waterings on the overhead system.

There was a yield decrease in the area that had water applied in the surface system. The area that was watered had a yield impact due to the water logging of the soil.

The ability to apply a smaller amount of water with the overhead allowed the crop to not be negatively affected compared to the surface which logged the soil and impacted yield potential.

Growers look at the long-range forecast to decide if they should apply water in their surface system, growers utilise the control of their overheads and water up canola to ensure sufficient establishment of canola.