

# Arable Update



## Cereals: Issue 231

### Do T0 fungicides add financial value? Ten years of research says 'no'.



A LIGHTER TOUCH

#### Background

Since 2013, FAR's autumn wheat fungicide trials have enabled the value of a T0 application at Growth Stage (GS) 30 to be evaluated. When managing Septoria tritici blotch (STB), this early spray is typically used as a holding treatment until T1 (GS 32) or as insurance in case the T1 application is delayed. While yield responses to T0 have generally been small, trial results show that the benefit varies greatly by season (Figure 1).

FAR's A Lighter Touch programme also considers how fungicide use affects development of pathogen resistance. Over time, we've seen a gradual erosion in fungicide sensitivity, with the number of applications being a key driver. This means that applying a T0 fungicide can lower both crop profitability and the long-term effectiveness of fungicides.

This Arable Update summarises yield and profitability results from 47 FAR trials since 2013, comparing programmes with and without a T0, to help guide your decision-making.

#### Results

111 comparisons across 47 trials located throughout New Zealand showed that adding a T0 application to a three-spray fungicide programme delivered a significant yield increase only 14 times (13%) (Figure 1).

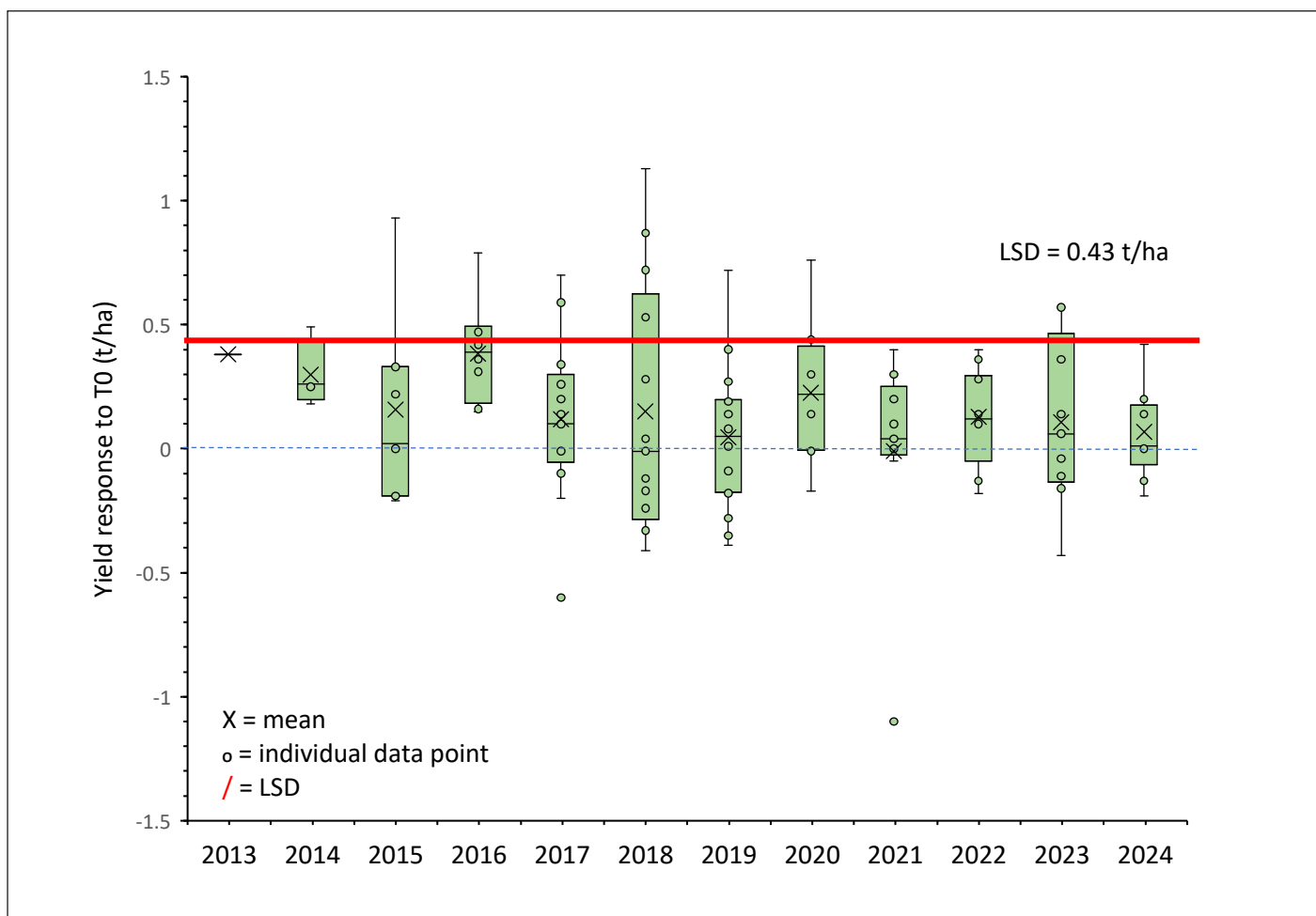
Average yields for the three (no T0) and four-spray programmes were statistically the same at 11.56 t/ha and 11.72 t/ha respectively. Yield responses ranged from -1.1 t/ha (cultivar 'Firelight' at Clinton in 2021 without irrigation) to +1.1 t/ha ('Reflection' at Clinton in 2018 without irrigation).

There was no significant financial return from a T0 spray across the trials, with margin-over-fungicide cost (MOFC) averaging \$791 for both programmes (Figure 2).

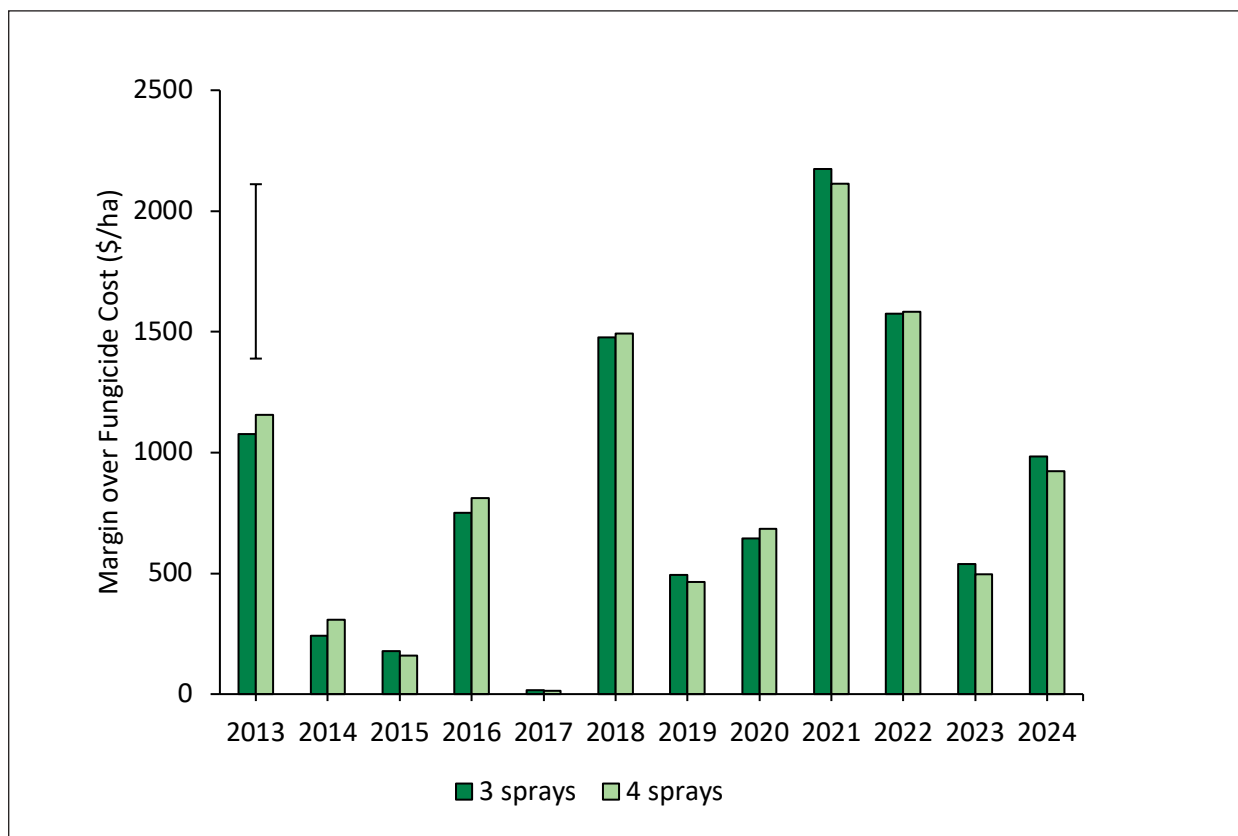
Regional responses to a T0 varied. In Mid Canterbury trials under irrigation, despite high disease pressure, a significant yield response to a T0 occurred only 17% of the time – less than one year in five. The average yield response was 0.19 t/ha (Table 1). In South Otago/Southland, the yield response to a T0 was significant only 9% of the time with an average yield response of 0.05 t/ha. To date, South Canterbury has not achieved a significant yield response from a T0 fungicide.

#### Key points

- A fungicide application at Growth Stage (GS) 30 (T0) in autumn sown wheat delivered a significant grain yield increase in only 13% of 111 comparisons across 47 FAR fungicide trials.
- Average grain yields were almost identical for three-spray (no T0) and four-spray programmes; 11.56 t/ha and 11.72 t/ha respectively.
- A T0 fungicide spray never delivered a financial benefit.
- The number of times a yield benefit from a T0 was observed depended on region or cropping system e.g. irrigated crops showed significant gains 17% of the time whilst non-irrigated crops (i.e. in South Canterbury) provided no yield improvement and often negative returns.



**Figure 1.** Yield response to T0 fungicide, summarised by year across 47 trials and 111 3-spray (no T0) versus 4-spray comparisons in Mid Canterbury, South Canterbury and Southland between 2013-14 and 2024-25. Yield response is significant if above 0.43 t/ha.



**Figure 2.** Average margin-over-fungicide cost (\$/ha) for three- (no T0) and four-spray programmes in Mid Canterbury, South Canterbury and Southland between 2013-14 and 2024-25.

**Table 1.** Regional yield response and margin-over-fungicide cost (MoFC) for a four-spray programme over a three-spray programme (no T0) between 2013-14 and 2024-25.

Location	Irrigation	No. comparisons	Yield response to T0 (t/ha)	MoFC for T0 spray (\$/ha)	Incidence of significant yield response (%)
Manawatu	No	1	-0.19	109	-
Mid Canterbury	Yes	60	0.19	17	17
Mid Canterbury	No	9	0.19	23	11
South Canterbury	No	20	0.06	-34	0
South Otago/ Southland	No	21	0.05	-42	9

## Discussion and conclusions

This research shows that in four years out of five, T0 fungicides provide no significant yield response, or profit for irrigated autumn wheat crops, even when there is high disease pressure. For dryland crops, their impact is even lower. Applying a T0 fungicide can cost you money and reduce the long-term effectiveness of fungicides. Consider seasonal risk and cultivar resistance when deciding on T0 use.

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