

Trial Title: Periodic harvest of sugar beet and fungicide interaction

Centre: Morley

Trial Code: SBT16-810

Variety: BTS470

Objective: To determine the growth rate and yield benefit of sugar beet treated with and without a triazole based fungicide programme during the summer and early autumn.

Mentor theme: Long-term monitoring

Summary: Since 2007 monthly comparisons of adjusted yields have been carried out either following or in the absence of, a summer fungicide regime and examines the relationship between yields and lifting date in sugar beet; this is known as the 'periodic lift study'. In contrast to previous years there appears to have been very little yield response to fungicide treatments compared to the untreated in 2016. Possibly as a result of reduced disease pressure reducing the expected yield loss seen on untreated plots.

- In 1997 a long term study was initiated at Morley to examine the relationship between yield and lifting date in sugar beet; this is known as the 'periodic lift study'. Since 2007 the monthly comparisons of adjusted yields have been carried out either following, or in the absence of, a summer fungicide regime (using a triazole based product).
- In 2016 the sugar beet (cv. BTS470) was drilled on 20/04/2016. All crop inputs were as the Morley Farm crop with the exception of fungicide applications (see input appendix for details).
- In 2016, the programme was based on Escolta (cyproconazole + trifloxystrobin) applied on 5th August, 5th September and 13th September 2016. Due to an on farm error all plots, except the untreated, were treated with Escolta (cyproconazole + trifloxystrobin) and Centaur (cyproconazole) at T1. Therefore, the treatments were adjusted accordingly (see treatments table, Table 1). The programme compared a one or two spray fungicide regime with lift timings from late August through to December 2016.
- Previous years have shown that the addition of a single full rate fungicide spray or two full rate fungicide spray across the analogous lift timings compared to the analogous lift timing without fungicide (untreated) has resulted in a positive yield response. However, in 2016 appears to have resulted in very little yield response to fungicide treatments compared to the untreated, (Figure 1). At the December lift timing, despite the application of fungicides, the mean adjusted treated yield across the analogous lift timing was 116 t/ha compared to 116 t/ha in the untreated.
- A possible explanation for this limited yield response can be due to low levels of disease pressure seen in the 2016 season (Figure 2). For the period up until late October disease levels remained below 6 % for Ramularia, Cercospora, Rust and Alternaria diseases assessed in the untreated plots.

Figure 1. The effect of a one or two spray fungicide programme on yield response and sugar content in sugar beet, Morley 2016.

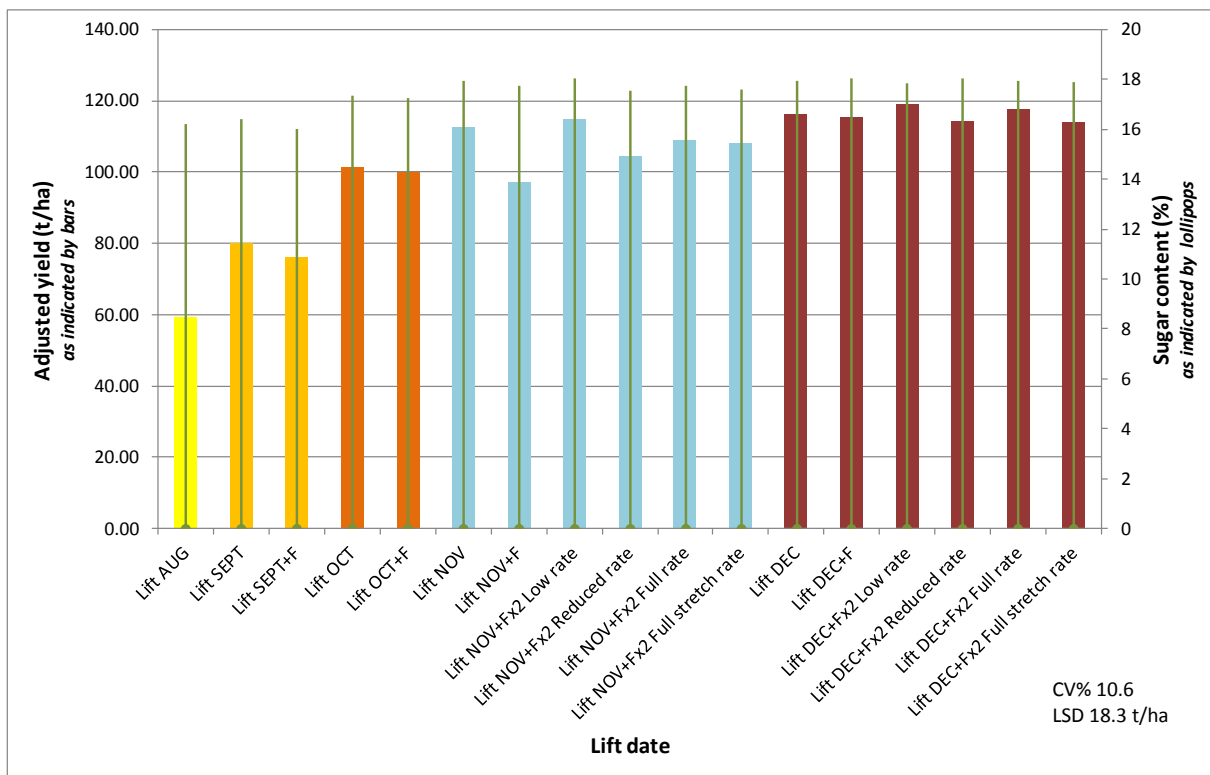


Figure 2. Disease levels (% leaf area) on untreated plots.

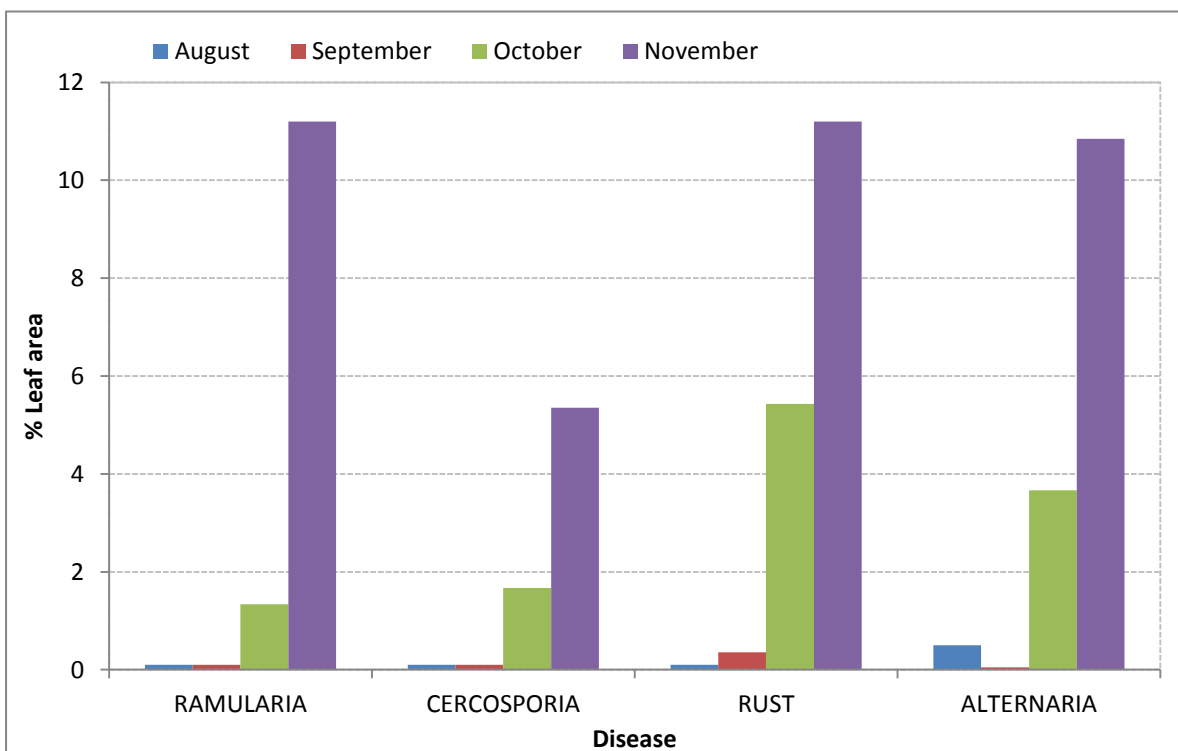


Table 1: Treatment table

TRT	Treatments T1	Treatments T2	Treatments T2	Lift dates
	Late July	Late August (4 week interval from T1)	Mid September (6 week interval from T1)	Third Week of (or as close to)
1	-	-		August
2	-	-		September
3	ESCOLTA @ 0.35 l/ha + CENTAUR @ 0.1 l/ha	-		September
4	-	-		October
5	ESCOLTA @ 0.35 l/ha + CENTAUR @ 0.1 l/ha	-		October
6	-	-		November
7	ESCOLTA @ 0.35 l/ha + CENTAUR @ 0.1 l/ha	-		November
8	ESCOLTA @ 0.25 l/ha + CENTAUR @ 0.1 l/ha	ESCOLTA @ 0.1 l/ha		November (Two spray programme – low rate)
9	ESCOLTA @ 0.25 l/ha + CENTAUR @ 0.1 l/ha	ESCOLTA @ 0.275 l/ha		November (Two spray programme – reduced rate)
10	ESCOLTA @ 0.35 l/ha + CENTAUR @ 0.1 l/ha	ESCOLTA @ 0.35 l/ha		November (Two spray programme – full rate)
11	ESCOLTA @ 0.35 l/ha + CENTAUR @ 0.1 l/ha	-	ESCOLTA @ 0.35 l/ha	November (Two spray stretch programme – full rate)
12	-	-		December
13	ESCOLTA @ 0.35 l/ha + CENTAUR @ 0.1 l/ha	-		December
14	ESCOLTA @ 0.25 l/ha + CENTAUR @ 0.1 l/ha	ESCOLTA @ 0.1 l/ha		December (Two spray programme – low rate)
15	ESCOLTA @ 0.25 l/ha + CENTAUR @ 0.1 l/ha	ESCOLTA @ 0.275 l/ha		December (Two spray programme – reduced rate)
16	ESCOLTA @ 0.35 l/ha + CENTAUR @ 0.1 l/ha	ESCOLTA @ 0.35 l/ha		December (Two spray programme – full rate)
17	ESCOLTA @ 0.35 l/ha + CENTAUR @ 0.1 l/ha	-	ESCOLTA @ 0.35 l/ha	December (Two spray stretch programme – full rate)
18	-	-		January
19	ESCOLTA @ 0.25 l/ha + CENTAUR @ 0.1 l/ha	-		January2
20	ESCOLTA @ 0.25 l/ha + CENTAUR @ 0.1 l/ha	ESCOLTA @ 0.1 l/ha		January (Two spray programme – low rate)
21	ESCOLTA @ 0.25 l/ha + CENTAUR @ 0.1 l/ha	ESCOLTA @ 0.275 l/ha		January (Two spray programme – reduced rate)
22	ESCOLTA @ 0.35 l/ha + CENTAUR @ 0.1 l/ha	ESCOLTA @ 0.35 l/ha		January (Two spray programme – full rate)
23	ESCOLTA @ 0.35 l/ha + CENTAUR @ 0.1 l/ha	-	ESCOLTA @ 0.35 l/ha	January (Two spray stretch programme – full rate)

Field details & overall applications to crop

Crop:	Sugar Beet
Trial ID:	SBT16-810
Location:	Home Close, Morley
Variety:	BTS470
Seed rate:	1.15 SBunit/ha
Soil type:	Ashley Series
Soil analysis:	-
Previous crop:	Winter Wheat
Drill date: dd/mm/yy	20/04/2016
Harvest date: dd/mm/yy	Periodic lift
Drilled plot size: m2	6 x 10m ² (inc. buffers)
Harvested plot size: m2	1 x 10 m approx
Replicates:	3

Input type	Product	Product rate (l, ml, kg or g/ha)	Date
Herbicide:	Rosate 360 (glyphosate)	4.0 l	09/12/2015
	Volcan Combi (chloridazon+metamitron)	2.4 l	24/04/2016
	Beta-Team (desmedipham+ethofumesate+phenmedipham)	1.0 l	14/05/2016
	Goltix 70 SC (metamitron)	1.0 l	14/05/2016
	Beta-Team (desmedipham+ethofumesate+phenmedipham)	1.0 l	27/05/2016
	Safari Lite WSB (lenacil+triflusulfuron methyl)	210 g	27/05/2016
	Beta-Team (desmedipham+ethofumesate+phenmedipham)	1.5 l	04/06/2016
	Goltix 70 SC (metamitron)	1.0 l	04/06/2016
	Safari Lite WSB (lenacil+triflusulfuron methyl)	210 g	28/06/2016
	Beta-Team (desmedipham+ethofumesate+phenmedipham)	1.0 l	28/06/2016
	Centurion Max (clethodim)	1.0 l	01/07/2016
	Vivendi 200 (clopyralid)	1.0 l	04/07/2016
	Adjuvant:	Companion Gold	0.5 l
Logic		0.5 l	27/05/2016
Logic		1.0 l	04/06/2016
Input type	Name of product and % of nutrient	Product rate/ha	Date
Fertiliser	FYM	20 t/ha	12/10/2015
	Kaimag75 35.130.200	870 kg/ha	28/09/2015
	Liquid N 27 + S	77 kg N/ha 14 kg S/ha	24/04/2016
	Liquid N 27 + S	35 kg N/ha 6 kg S/ha	08/06/2016

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