Managing crown rot on Upper Eyre Peninsula – a joint learning experience

This two-year project is funded by SAGIT and was in its final field season in 2023. Treatment effects were assessed using natural paddock inoculum (no artificial inoculation). Trial sites at Buckleboo (Buckleboo Farm Information Group) and Mitchellville (Franklin Harbor Agricultural Bureau) had medium to high risk levels for crown rot in 2022 and 2023.

Seasonal conditions in 2023 were more conducive to crown rot expression than in 2022, with basal stem browning obvious at both sites and some white head expression occurring. Yields in 2023 were in the normal range for bread wheat e.g. average Scepter yields: Buckleboo - 1.56 t/ha; Mitchellville - 1.60 t/ha. Mouse damage occurred at Buckleboo prior to baiting.

Take home messages

- In the low rainfall environment of Upper Eyre Peninsula there were consistent, small percentage yield responses to VICTRATO® (average 1%-12%), even in the 2022 and 2023 seasons where there was limited crown rot expression.
- These findings make VICTRATO® a useful addition to the strategies currently available for crown rot management. It is clear VICTRATO® should not be used as a stand-alone option, but will best be pyramided with other management options and should only be used where the risk of yield loss from crown rot is known to be medium to high.
- With the small % yield increases that might be expected, the actual yield increase in t/ha will be more for higher yielding crops e.g. a 10% yield improvement for Scepter at Buckleboo in 2022 = 0.39 t/ha and in 2023 = 0.15 t/ha.
- At Mitchellville in 2023, a combination of season, soil and site conditions disadvantaged barley yield (22% yield decrease) due to the good early growth promoted by VICTRATO® in the presence of crown rot. This result was unexpected and is unlikely to occur often, nor is it likely to occur in bread wheat varieties.
- VICTRATO® appears to slightly reduce crown rot severity (but not visual incidence). To better understand the effects of VICTRATO® on inoculum carryover, dedicated trials were established in 2023 and crown rot risk levels will be assessed in 2024.

Yield responses to seed treatment – Upper EP, 2022 and 2023

VICTRATO® (with TYMIRIUM® chemistry) fungicide seed treatment is a Syngenta product proposed for commercial release in Australia this season to assist with crown rot management. This product does not include active ingredients for control of smuts and bunts.

2023 sites

Responses of crown rot expression to seed treatment - Mitchellville, 2022

Yield responses (%) to VICTRATO® seed dressing

	Buckleboo		Mitchellville	
	2022	2023	2022	2023
Anvil	5	4	7	7
Calibre	11	3	6	8
EmuRock	0	4	6	-1
Razor	1	3	10	8
Scepter	4	10	2	8
Trojan	na	10	na	3
Vixen	8	8	10	2
Commodus	12	7	7	-22
Av. Untreated Scepter yield t/ha	3.91	1.56	2.82	1.60

Percentage yield changes were small, but are consistent with those seen elsewhere.

Responses for each entry varied amongst rep's, reflecting normal spatial variability in inoculum levels and soil type/moisture.

The % yield decrease for Commodus in 2023 at Mitchellville was unexpected, as all other responses of this entry have been positive (7%-12%). This anomaly was possibly due to exceptional early growth in treated plots that meant grain filling could not be supported when moisture ran out.

Crown rot expression on main stems

Mitchellville 2022

	Untreated	Treated
Calibre	2.00	1.22
Emu Rock	2.00	1.50
Scepter	2.09	1.62
Anvil	2.16	1.48
Vixen	2.27	1.64
Razor	2.31	1.50
Commodus	2.50	2.11

Treated = VICTRATO® fungicide seed dressing

Risk categories (scoring scale 0-5)

0	No crown rot incidence
>0-1.5	Low risk of yield loss
>1.5-2.5	Some risk of yield loss
>2.5-3.5	Medium risk of yield loss
>3.5-5	High risk of yield loss

Basal stem browning scores (scoring scale 0-5) were lower in VICTRATO® Treated plots than Untreated plots.

The "low risk of yield loss" category was only seen in Treated plots.

Buckleboo results are not presented, but were similar to those for Mitchellville.

Actual stem browning scores were only slightly lower in Treated plots and likely effects on inoculum carryover are unclear.

Incidence of main stems with basal browning (data not presented) was similar for Treated and Untreated plots.

This project, Managing crown rot on upper EP – a joint learning experience (AEP-1022-R) is funded by SAGIT.

Update prepared January 2024.

SAGIT

AIR EP
Ag Innovation & Research
Eyre Peninsula

EPAG
RESEARCH

Elders