

2021 NSW Crop Technology Centre - Wallendbeen, New South Wales

Time of Sowing – 20 April 2021

Unless otherwise stated the following details apply to the results presented in this section. For other details please go to the appendix.

Sown: 20 April 2021

Harvested: 5 January 2021

Rotation position: 1st Cereal after canola 2020

Soil type and management: Red clay loam – Kelly chained over summer

Trial 1: HYC 1st Stage Screen

Objectives:

To examine the phenology, disease resistance and standing power of new wheat germplasm sown on 20 April versus control varieties.

Treatments: 30 lines were sown in small plots (4m in length) with standard nitrogen management but **NO FUNGICIDE or PGR input** to this trial. Plots were not taken to yield.

Key Messages:

- Stripe rust (*Puccinia striiformis* f. sp. *tritici*) was the most destructive disease in the untreated screen, severely affecting Catapult, Rockstar, and Trojan (93%, 65%, and 35% plot infection respectively).
- From sampling carried out the 239 pathotype was the dominant pathotype on site with lower levels of the 198 pathotype (the dominant pathotype in 2020).
- Septoria tritici blotch (STB) caused by the pathogen *Zymoseptoria tritici* was more significant in 2021 in terms of green leaf area lost, with up to 75% plot infection in Scepter. Other notable infections include V12167-048, Coota, and L13070-027 (70%-39% plot infection).
- The following varieties AGFWH004418, AGFWH004618, Big Red (AGFWH004718) and AGFWH004818 had similar phenology, and as good as or better disease resistance and standing power (straw strength) than the highest yielding feed wheats on the research site RGT Accroc, Anapurna and RGT Cesario (see trials 2 – 4).

Table 1. Growth stage assessments from 30 June, 22 July, 19 August, 16 September, 6 October, 18 October and 1 November – recorded on the Zadoks scale 0 – 99. RGT Accroc considered as control cultivar.

Variety	30-Jun	22-Jul	19-Aug	16-Sep	6-Oct	18-Oct	1-Nov
Scepter	23	30	32	51	65	71	77
Trojan	23	31	32	45	59	71	73
Annapurna	24	28	29	33	49	59	69
RGT Accroc	25	29	31	33	49	65	71
Nighthawk	27	30	31	39	53	67	71
Reflection	24	28	30	32	33	39	55
Graham	26	28	29	31	33	39	55
Savello	26	27	28	32	37	41	58
Shabras	25	28	30	32	33	41	53
Coota	23	31	32	45	61	71	75
Manning	24	27	30	32	37	51	65
Rockstar	25	28	31	41	59	71	75
Catapult	24	31	32	45	61	71	75
Tabasco	25	28	29	32	33	41	55
Beckom	23	31	32	51	61	67	75
RGT Cesario (SFR86-090)	26	29	30	33	41	53	67
LPB17-5691	23	31	32	41	61	69	73
LRPB16-0582	24	29	31	37	55	63	73
LPB16-0598	24	31	31	37	52	63	71
SUN1087I	24	30	32	45	59	69	75
V12167-048	25	28	32	41	59	61	73
V11068-085-047	24	27	31	39	58	65	75
AGFWH004418	24	28	31	33	41	55	69
AGFWH004618	24	29	30	37	49	59	71
AGFWH004718 (Big Red)	25	28	29	32	45	56	71
AGFWH004818	25	28	28	32	41	52	69
L13070-027	24	26	31	33	58	61	73
Aurora (Durum)	24	31	32	41	59	62	71
Bitalli (Durum)	24	31	32	45	58	61	73
Westcourt (Durum)	23	29	31	37	52	59	71

There was a range of approximately 40 days between the earliest spring milling wheats reaching flowering and the later developing feed winter wheat from a 20th April sowing date (Table 1 & Figure 1).

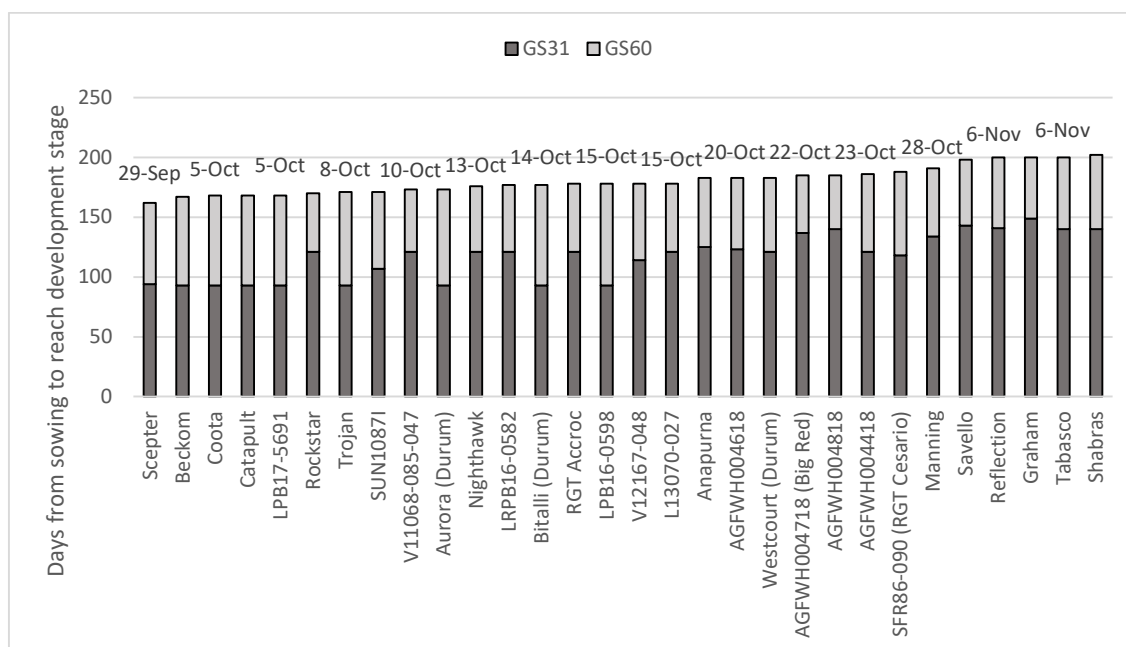


Figure 1. Approximate number of days taken to reach critical growth stage (from sowing) periods of 1st node (GS 31) and start of flowering (GS 60). Data label shows approximate date of GS60.

Table 2. Diseases present in each variety throughout the growing season. (STB= Septoria tritici blotch, YLS= Yellow leaf spot, Sr= Stripe rust, Lr= Leaf rust). A tick indicates diseases present at any point in the season.

Variety	Sr	STB	YLS	Lr
Scepter	✓	✓		
Trojan	✓	✓		
Anapurna		✓		✓
RGT Accroc	✓	✓		✓
Nighthawk		✓	✓	✓
Reflection		✓		
Graham		✓		✓
Savello		✓		✓
Shabbras		✓		✓
Coota	✓	✓		
Manning		✓		✓
Beckom		✓	✓	
Rockstar	✓	✓		
Catapult	✓			
Tabasco	✓	✓		
SFR86-090 (RGT Cesario)		✓		✓
LPB17-5691	✓	✓		
LRPB16-0582		✓	✓	
LPB16-0598	✓	✓		
AGFWH004418	✓	✓		
AGFWH004618	✓	✓		✓
AGFWH004718 (Big Red)	✓	✓		

AGFWH004818	✓	✓	✓	
SUN1087I	✓	✓		
V12167-048		✓		
V11068-085-047	✓	✓	✓	✓
L13070-027		✓		
Aurora (Durum)	✓	✓		
Bitalli (Durum)	✓		✓	
Westcourt (Durum)	✓			

The most diseased 1st stage screen cultivars tested in the trial were Catapult, Rockstar, Trojan, V12167-048, Coota and L13070-027 (Figure 2) with the most damaging diseases being stripe rust and Septoria tritici blotch. The more disease resistant wheats tended to be the later developing winter feed wheats from Europe. The exception to this was RGT Accroc which had intermediate resistance and gave large responses to fungicides in the Tasmania, southern Victoria and lower SE region of SA environments. Note this response to fungicide is in contrast to responses observed at high altitude at Wallendbeen in southern NSW.

In terms of standing power, the stiffest strawed cultivars at maturity were the European winter wheats, the exception to this being that Big Red (AGFWH004718) which at high yields has been weaker than the other high yielding winter feed wheats. Also note that RGT Accroc is weaker strawed under high yielding scenarios (Figure 3). The durum wheats Bitalli and Westcourt were some of the most affected varieties in terms of lodging.

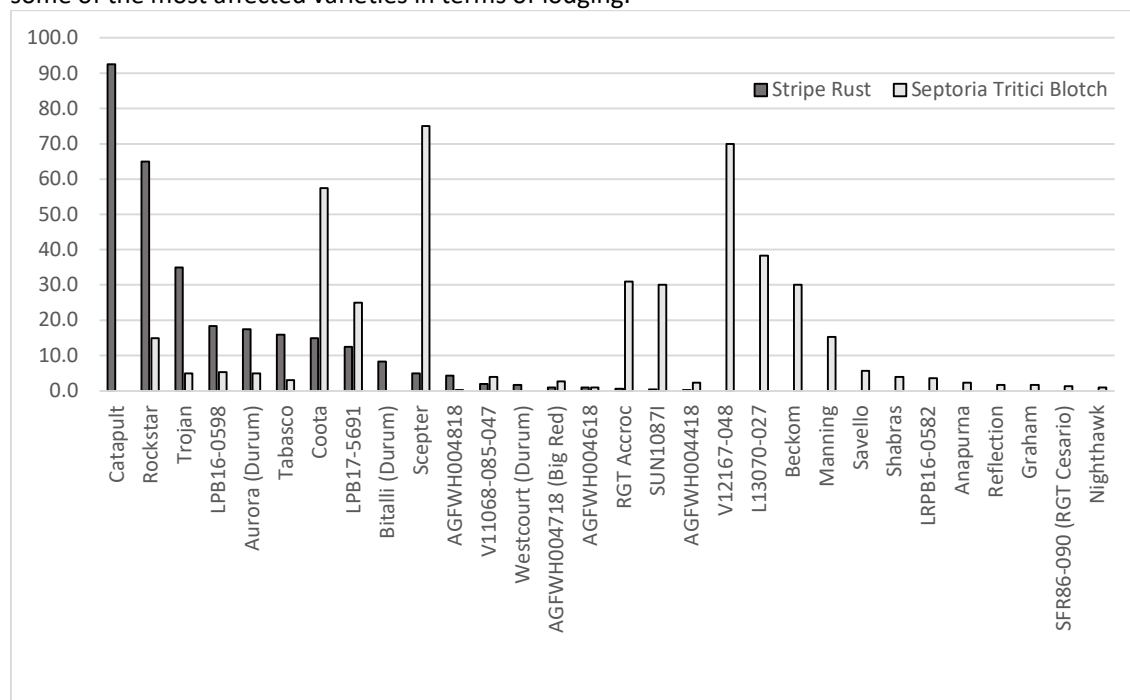


Figure 2. Disease severity of Stripe rust and Septoria tritici blotch (whole plot % score), assessed 16 November (GS69-85).

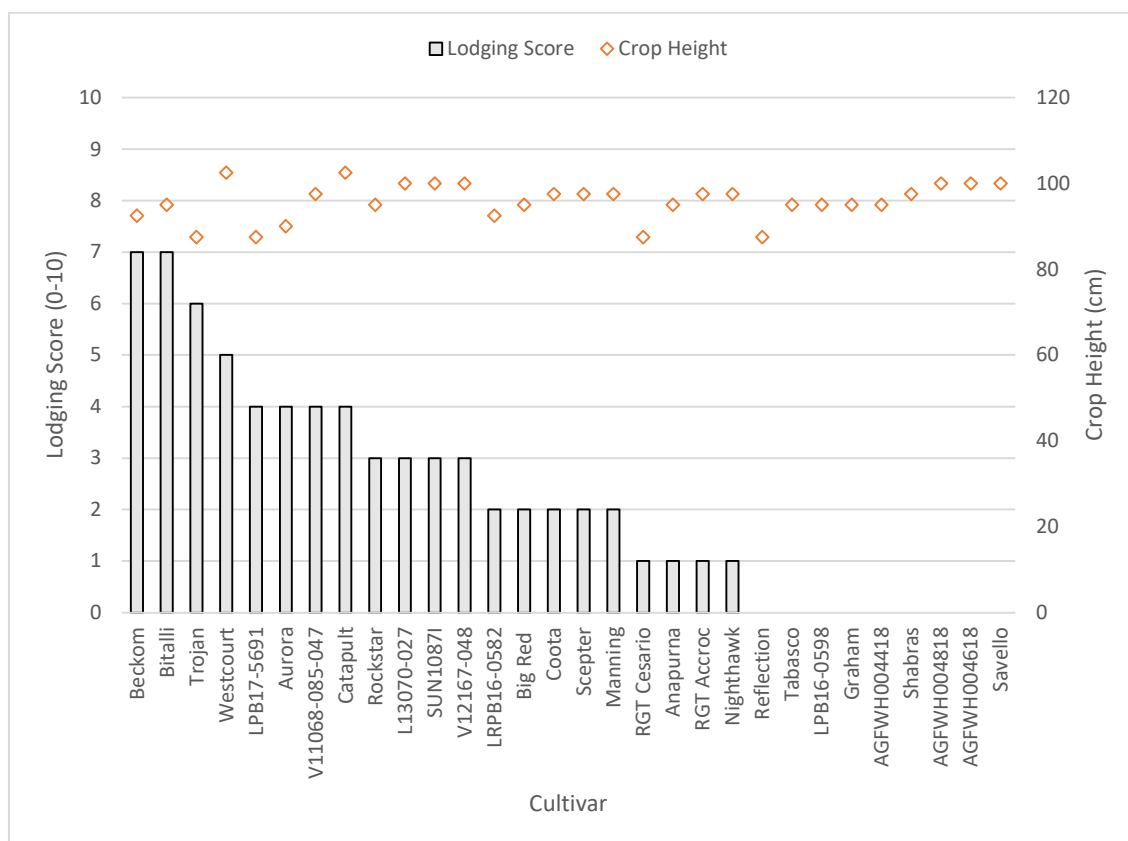


Figure 3. Crop lodging at physiological maturity assessed as Lodging index and crop height (cm) assessed on 22 December.

Table 3. Details of the management levels (kg, g, ml/ha).

Plant pop'n: 180 seeds/m ² (150 plants/m ² target)		
	Timing	Untreated
Seed treatment:		Vibrance + Goucho
Basal Fertiliser:	20 April	120kg MAP (12 Kg N)
Nitrogen:	17 June	18.5kg N/ha
	11 Sep	115kg N/ha
Total N Applied:		133.5kg N/ha
PGR:		---
Fungicide:	GS31	---
	GS39	---
	GS59-61	---

All other inputs of insecticides and herbicides were standard across the trial.