

2021 TAS Crop Technology Centre Hagley, Victoria

Experimental Details

Sown: 8 September 2021

Harvested: 20 January (1st Harvest Date) to 4 February 2022 (2nd Harvest Date)

Rotation position: 1st cereal after Poppies

Soil Type: Chromosol

Spring sown barley summary:

- Peak yield of 10.98t/ha was achieved in 2021, 10t/ha can be consistently achieved across diverse management regimes in Planet.
- Further evidence that harvest index rapidly declines in barley at 16t/ha of dry matter.
- Laureate has high yield potential but is more prone to lodging and brackling.
- Higher N rates increased brackling and Lodging.
- Evidence to suggest harvest indices approaching 60% are possible in irrigated spring sown barley.
- Fungicide management is easier in spring sown barley compared to Autumn sowing barley.
- PGR responses were variable for lodging and brackling, but later applications reduced head loss.
- A 14 day harvest delay did not result in significant yield loss in 2021 and PGR treatment had little impact.

The key feature of the Tasmania HYC Barley site is the fact it is spring sown and supplemented with irrigation. This presents different challenges to growing barley such as a greater chance of heat risk during grain fill, and brackling from rapid growth during stem extension. Cultivars that are less responsive to longer days (photoperiod) are also required to ensure they do not develop too early and build insufficient biomass.

Trial 1. HYC 1st Stage Screen

Objective: To examine the phenology, disease resistance and standing power of new barley germplasm established at the start of spring.

Key Messages:

- Plant height varied from 59cm in Minotaur to 95cm in Crescendo.
- Data highlights the increased lodging incidence in Laureate and this will need to be managed.
- Shorter cultivars in this trial were also less prone to lodging.
- The incidence of brackling was less in 2021 than 2020.
- Lodging and brackling were not always correlated suggesting they are genetically independent and may require different management solutions.
- These data highlight plant heights lower than 80cm, lodging and brackling can all be reduced with genetic solutions.
- Spring lines such as Laureate, and Crescendo developed later than Planet.
- Laperouse and Rosalind developed earlier than Planet.

Treatments: 20 lines sown in small plots (5m in length depending on site) with standard nitrogen management but no fungicide or no PGR input, not taken to yield.

Table 1. Canopy structure at crop maturity (GS99)

Variety	Crop Height (cm)		Lodging Index (0-500)		Brackling (% Plot)	
RGT Planet	75.5	def	0.0	-	10.0	-
Rosalind	78.0	c-f	2.5	-	10.0	-
Minotaur	59.0	g	0.0	-	6.0	-
AGTB0244	81.5	b-e	0.0	-	3.0	-
HV8 Nitro	85.5	bc	180.0	-	10.0	-
Laperouse	75.0	ef	0.0	-	0.0	-
Laureate	77.5	c-f	195.0	-	17.5	-
GSP-18-44-B	80.0	c-f	0.0	-	5.0	-
Planet + WL	81.0	b-f	5.0	-	65.0	-
Sure	72.0	f	5.0	-	7.5	-
PNA 1-1	84.5	bcd	0.0	-	3.5	-
Crescendo	95.0	a	240.0	-	35.0	-
Bottler	80.0	c-f	15.0	-	37.5	-
AGFBA007618	81.5	b-e	25.0	-	27.5	-
AGFBA007718	74.5	ef	20.0	-	7.5	-
Fatima	80.0	c-f	0.0	-	42.5	-
Westminster	90.0	ab	210.0	-	30.0	-
Leabrook	85.0	bc	85.0	-	47.5	-
AGTB0245	73.0	ef	0.0	-	1.0	-
Sanette	80.0	c-f	250.0	-	32.5	-
Mean	79.4		61.6		19.9	
LSD 0.05	9.3		ns		ns	
P Val	<0.001		0.190		0.412	

Table 2. Details of the management levels (kg, g, ml/ha).

Sowing date:		8 September
Seed Rate:		300 seeds/m ²
Sowing Fertiliser:		100kg MAP/ha
Seed Treatment:		Pontiac
Nitrogen:		1 Oct
		160kg N/ha
Fungicide:		Nil