

## Trial 2. HYC Elite Screen

**Objective:** To examine the yield potential of new spring germplasm grown under HYC Management packages against spring controls in an early spring sowing window.

### Key Messages:

- The highest yielding cultivar was RGT Planet at 10.84t/ha while many other spring cultivars yielded similarly including Rosalind.
- Day length sensitive cultivars such as Laperouse and Minotaur yielded 8.24 and 9.65t/ha respectively.
- The older cultivar Westminster 8.65t/ha is now significantly outclassed.
- Laureate's performance was lower than 2020 at 9.93t/ha in 2021, however this was likely due to increased Nitrogen and lodging which will be discussed in the G\*E\*M trial.
- Other new variety commercial releases such as Fandaga yielded competitive with Planet.
- Grain protein levels were all above 11% except for AGTB0244.

**Treatments:** (20 elite lines tested under HYC High input management (full foliar fungicide program (Systiva & 2 foliar fungicides – GS30 & GS49).

**Table 1.** Grain yield of the variety evaluation trial (t/ha, % site mean) and grain quality results.

Variety	Grain Yield			Grain Quality						
	Yield (t/ha)		Site Mean (%)	Protein %		Test wt kg/HL		Retention %		Screenings %
RGT Planet	10.84	a	108.2	11.6	cde	69.4	a-d	88.3	a-d	2.8 cde
Rosalind	10.55	ab	105.4	12.6	bc	70.2	ab	93.5	abc	1.9 de
Minotaur	9.65	c-f	96.3	11.8	cd	69.6	a-d	95.1	ab	2.1 de
AGTB0244	10.28	a-d	102.6	10.5	e	65.7	gh	79.3	d	5.1 a
HV8 Nitro	10.31	a-d	103	11.7	cde	69.9	ab	88.2	a-d	3.2 a-e
Laperouse	8.24	h	82.3	14.6	a	68.5	a-e	96.3	a	1.7 e
Laureate	9.93	b-e	99.2	11.5	cde	67.4	d-g	86.7	a-d	3.3 a-e
GSP-18-44-B	10.19	a-e	101.7	11.2	de	68.1	b-f	79.9	d	4.7 abc
IGB1844	8.97	fgh	89.6	13.5	ab	69	a-e	93.5	abc	2.5 de
Alestar	10.31	a-d	103	11.8	cd	69.9	ab	91.5	abc	2.4 de
Fandaga	10.69	ab	106.8	11.7	cde	67.6	c-g	93.5	abc	2.2 de
Crescendo	9.41	efg	93.9	11.7	cde	66.9	e-h	90.7	abc	2.9 b-e
Bottler	10.11	a-e	101	12	cd	69.8	abc	92.9	abc	2.3 de
Maximus CL	10.42	abc	104.1	11.8	cd	64.8	h	84.5	cd	3 b-e
Buff	10.53	ab	105.2	11.5	cde	66.1	fgh	79.2	d	4.9 ab
Sure	9.5	def	94.8	12	cd	64.8	h	79.5	d	4.7 abc
Westminster	8.65	gh	86.4	12.3	cd	70.4	a	89.8	abc	2.7 cde
Leabrook	10.67	ab	106.6	11.7	cde	69.4	a-d	96	ab	1.4 e
Sanette	10.59	ab	105.8	11.5	cde	68	b-f	84.3	cd	3.8 a-d
Water logging tolerant Planet	10.43	abc	104.2	10.5	e	67.5	d-g	86.5	bcd	3.4 a-e
Mean	10.01		100	11.86		68.15		88.47		3.05
LSD 0.05	0.84		8.43	1.2		2.27		9.74		2.1
P Val	<0.001		0.000	<0.001		<0.001		0.003		0.017

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

<b>Sowing date:</b>		8 September
<b>Seed Rate:</b>		300 seeds/m <sup>2</sup>
<b>Sowing Fertiliser:</b>		100kg MAP/ha
<b>Seed Treatment:</b>		Pontiac
<b>Nitrogen:</b>	1 Oct	160kg N/ha
<b>Fungicide:</b>	GS00	Systiva
	GS30	Radial 840ml/ha
	GS49	Aviator Xpro 420ml/ha

### Trial 3. HYC G.E.M Trial series

**Objective:** To assess the performance of new spring barley germplasm managed under different canopy structures which includes plant density, fungicide and Nitrogen rate. This includes a spring sown wheat for comparison.

#### Key Points:

- The best managed treatments in Laureate, RGT Planet, Rosalind and the Wheat Zanzibar yielded 10.7, 10.7, 10.5, and 8.2t/ha respectively, highlighting spring sown barley out yields spring sown wheat by up to 2t/ha (table 1)
- Increasing fungicide inputs had little impact on grain yield in the cultivars Rosalind, Laureate and the wheat Zanzibar – this highlights the robustness of spring sowing for disease management and the fact high yields can be achieved with cheaper (without the SDHIs) and less fungicide inputs than Autumn sowing.
- Laureate: Canopy management was important in Laureate, lower nitrogen rates had a bigger influence on grain yield in Laureate than higher seeding and N rates due to increased lodging (figure 1)
  - High seeding density (360 seeds/m<sup>2</sup>), and high N rate (140kg N) yielded 8.2t/ha,
  - Lower density (150 seeds/m<sup>2</sup>) and low N rate (70 kg N/ha) yielded 10.3 t/ha.
- Planet: Highest yields were achieved at higher plant densities and high fungicide inputs irrespective of N strategy, highlighting Planet is less disease resistant but more tolerant to lodging than Laureate.
- Rosalind: Higher yields were achieved at higher plant densities irrespective of N and fungicide strategy, this highlights the importance of higher seeding densities in shorter faster developing cultivars under spring sown conditions.
- Test weights, screenings, and retention were all with malt specifications despite the heat during grain fill. Grain proteins ranged from 10.6 – 11.5 at low N in the malt cultivars Laureate and Planet, whereas at high N they ranged from 11.3 – 12.4 and were above malt specification in Laureate (Table 3)

**Treatments:** Lever 1 – Level of fungicide inputs (Standard input & high input).  
 Lever 2 – Level of Nitrogen Inputs 70kg N/ha upfront, and 140 kg N/ha upfront.  
 Lever 3 – Seeding Density (standard 150 seeds/m<sup>2</sup> versus 360 seeds/m<sup>2</sup>).  
 Lever 3 –Germplasm (3 spring barleys - Laureate, RGT Planet & Rosalind, 1 spring wheat- Zanzibar).