PROVISIONAL RESULTS:

Barley Germplasm Screening for the HRZ (untreated with fungicide and PGRs)
2019/20 SA Crop Technology Centre - Screening Results *(Provisional)*

Sown: 18 April 2019 **Harvest:** Not taken to yield
Rotation position: 1st Cereal after Broad Beans
Soil Type: Neutral-slightly alkaline Organosol (Peat soil) – high organic matter (0-30cm)

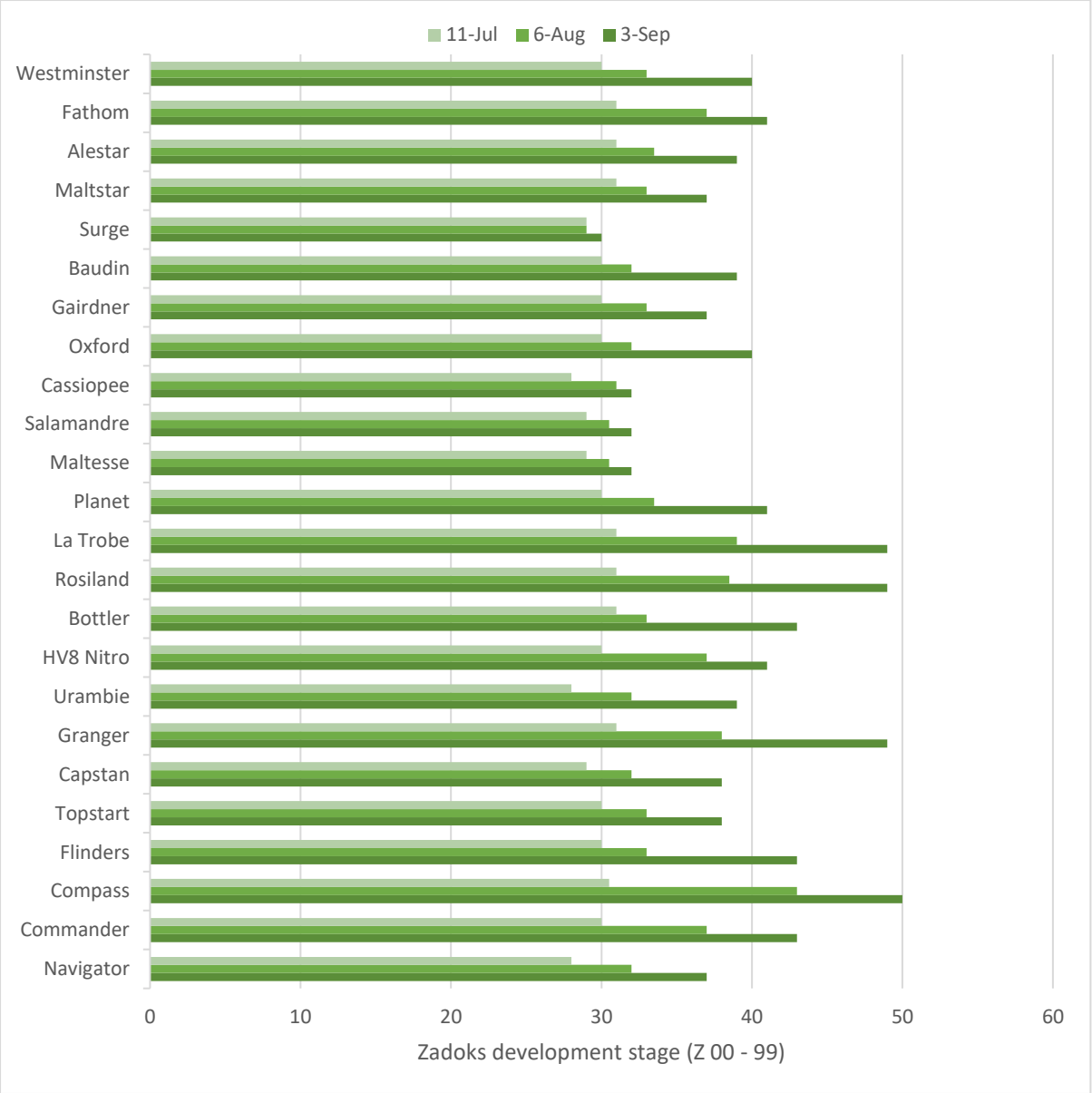

Figure 1. Development phenology – stem elongation development of 24 different barley lines and cultivars (Zadoks growth stage reached on 11 July, 6 August & 3 September).

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Key Messages:

- *The barley germplasm screening trial was set up to look at potential candidates suitable for early sowing (mid-April). The trial looked primarily at phenology (rate of development), standing power and disease resistance. The trial was not taken to yield.*
- *To examine disease resistance and standing power no fungicides or PGRs were applied.*
- *The earliest winter barley to reach head emergence from mid – April sowing was Urambie (30 Sept) and the latest was the UK winter barley Surge (14 Oct).*
- *With spring germplasm sown at the same time the earliest cultivars to reach head emergence were Compass (3 Sept) and Rosalind (9 Sept).*
- *Cultivars with the greatest level of disease resistance (to net form of net blotch – NFNB) were the winter barley varieties Maltese, Salamandre, Cassiopee and Surge. Of the spring germplasm tested Westminster and Rosalind were amongst the most disease resistant cultivars.*
- *N.B. that the excessive biomass produced with early sowing and rotation position following broad beans whilst good for screening cultivar disease resistance and standing power does not represent an ideal rotation for high yielding barley crops.*

Table 1. Development phenology – date of head emergence and anthesis (flowering) of 24 different Barley lines and cultivars.

Cultivar	Head Emergence (GS55)	Anthesis (GS65)
Westminster	30-Sep	8-Oct
Fathom	30-Sep	8-Oct
Alestar	23-Sep	30-Sep
Maltstar	8-Oct	28-Oct**
Surge	14-Oct	21-Oct
Baudin	23-Sep	4-Oct
Gairdner	30-Sep	4-Oct
Oxford	30-Sep	8-Oct
Cassiopee	8-Oct	10-Oct*
Salamandre	8-Oct	14-Oct
Maltesse	8-Oct	17-Oct
Planet	23-Sep	30-Sep
La Trobe	16-Sep	28-Sep
Rosalind	9-Sep	25-Sep
Bottler	16-Sep	28-Sep
HV8 Nitro	16-Sep	28-Sep
Urambie	30-Sep	10-Oct
Granger	16-Sep	28-Sep
Capstan	30-Sep	8-Oct
Topstart	23-Sep	4-Oct
Flinders	23-Sep	4-Oct
Compass	3-Sep	16-Sep
Commander	30-Sep	14-Oct
Navigator	8-Oct	14-Oct

*NB. **Some of the spring cultivars showed secondary tillering which meant that some cultivars displayed later flowering from regrowth after initial main stems were destroyed by frost or very high disease pressure. *Flowering characteristics where noted at the time of head emergence.*

Table 2. Severity of Net Form Net Blotch (% plot infection) on August 6 and September 3 assessed in the different barley cultivars.

Cultivar	August 6	September 3
Westminster	0.1	4
Fathom	25	50
Alestar	30	65
Maltstar	40	75
Surge (winter barley)	0.1	4
Baudin	10	35
Gairdner	10	65
Oxford	25	75
Cassiopee (winter barley)	0	2
Salamandre (winter barley)	0	3
Maltesse (winter barley)	0	1
Planet	25	55
La Trobe	8	20
Rosiland	0.2	8
Bottler	8	35
HV8 Nitro	1	22
Urambie (winter barley)	0.5	10
Granger	10	80
Capstan	15	60
Topstart	25	80
Flinders	10	35
Compass	8	45
Commander	20	65
Navigator	15	70

Table 3. Trial input and management details (kg, g, ml/ha).

Plant pop'n:		180 seeds/m^2 (150 plants/m2 target)
Seed treatment:		Vibrance/Gaucho
Basal Fertiliser:	18 April	145kg MAP
Nitrogen:	1 August	87 kg Urea (40 N)
	30 August	87 kg Urea (40 N)

Available Soil Nitrogen (10th April) – 445.1 kg N/ha (0 – 60cm) prior to sowing

All inputs of insecticides and herbicides were standard across the trial. No fungicides or PGRs were applied to the screening trial.

Meteorological Data- SA Crop Technology Centre

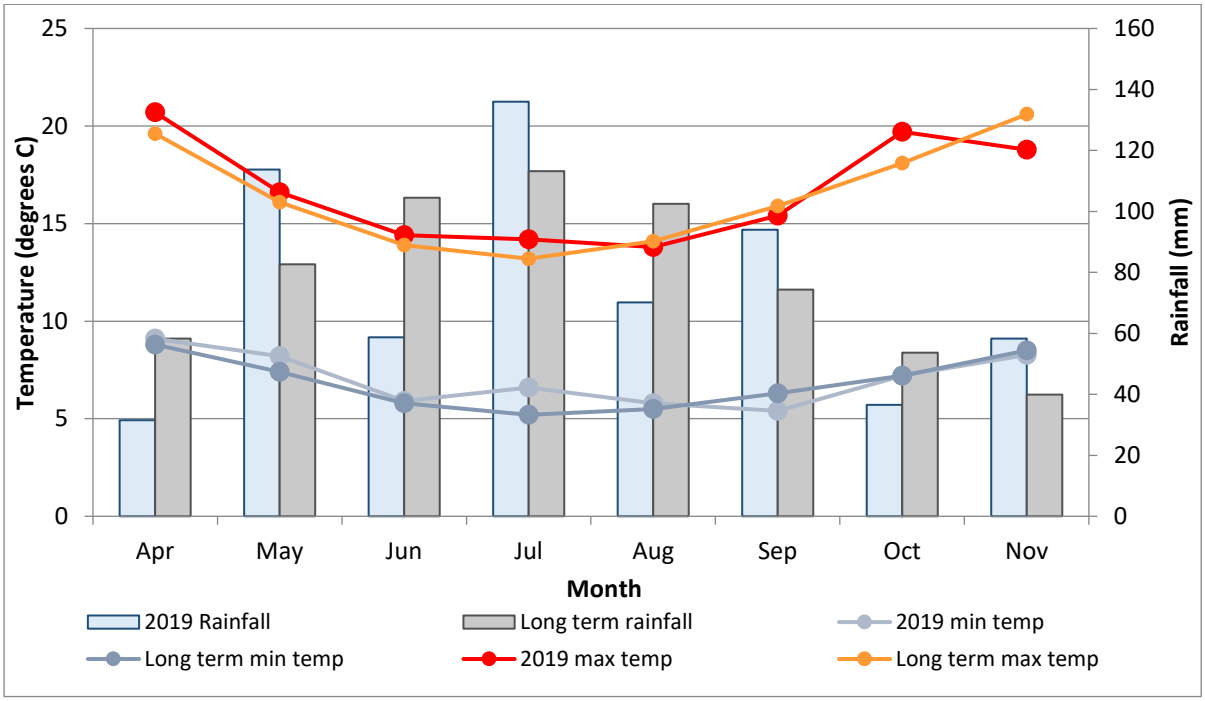

Figure 2. 2019 growing season rainfall and long term rainfall (1877-2019) (recorded at Millicent), 2019 min and max temperatures and long term min and max temperatures recorded at Mount Gambier (1941-2019) for the growing season (April-November). *Rainfall April to November= 598.8mm.*

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