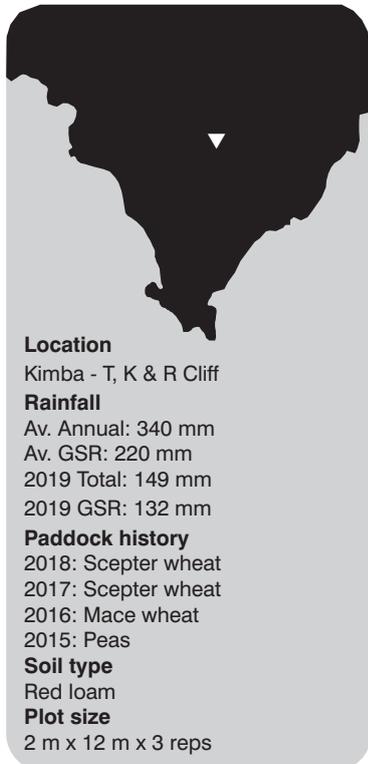


Which oat varieties performed best for hay production at Kimba in 2019?

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production and quality, the Buckleboo Farm Improvement Group wanted to identify the best current oat hay variety for the Kimba area. For the 2018 oat variety results see EPFS Summary 2018 p100.

How was it done?

Seed for seven oat varieties and one grazing barley variety were supplied by Balco. The 2019 trial was sown with SARDI small plot equipment on 2 May into moist seed bed conditions (wet to 10 cm only) with 60 kg/ha of DAP fertiliser (18:20:0:0). Seeding rates for every variety were targeted to an establishment of 180 plants/m². On 23 July 50 kg/ha of urea was applied to the trial. No pre-emergent herbicides were applied, and Amine 625 @ 1 L/ha was applied post emergent for broadleaved weed control.

Plant establishment was counted on 27 May, with dry matter cuts taken on 1 July, 19 July, 19 August, 23 August and 2 September. Plant height was measured on 2 September. Dry matter samples, simulating hay production, from the 2 September cut (except Durack and Yallara which were taken on 23 August) were dried for 48 hours at 40°C and sent for feed quality analysis using FeedTest. The trial was not harvested for grain yield.

The trial was a randomised complete block design with three replications. Data was analysed using Analysis of Variance in GENSTAT version 19. The least significant differences are based on F prob=0.05.

What happened?

The 2019 season was very dry for Kimba with below average rainfall for all months, and growing season rainfall was a decile 1. Despite the season, seeding soil moisture and crop establishment was reasonable by 27 May, despite being lower than targeted (Table 1).

There were differences in dry matter production between the oat varieties with Yallara performing the best in the dry conditions (Table 1). Moby barley was extremely drought stressed and was very short. Durack and Yallara matured earlier than the other varieties and the feed quality test samples at hay cutting were taken 9 days before the other varieties. There were no differences in feed quality between the oat varieties in 2019 (Table 2).

About the recommended varieties

Durack is an extremely early, moderately tall variety released in WA. It is similar in height and yield to Yallara. Durack is the earliest maturing oat variety of any variety currently available. Durack has good lodging and shattering resistance and good early vigour. Grain quality for this line is excellent. Hay yield averaged over low, medium, and high rainfall sites is lower than other longer season varieties. Care will need to be taken to cut this very early maturing variety at the correct growth stage and monitoring the crop will be the key to achieving the highest hay quality (SARDI Oat Newsletter, 2018).

Key messages

- **All oat varieties achieved over 8% protein and estimated metabolisable energy greater than 9 MJ/kg DM in both 2018 and 2019, so would meet export hay quality.**
- **The recommended oat varieties to grow in the Kimba region are Durack, Yallara, Brusher or Wallaroo. Brusher and Wallaroo performed well in 2018.**
- **Durack is ready for hay cutting at a much earlier time than other varieties.**

Why do the trial?

Farmers in the Kimba area have been producing oaten hay for export for several years. The industry has been expanding, with dedicated storage facilities established in recent years on the outskirts of Kimba. To maximise

Table 1. Establishment and growth of hay varieties at Kimba in 2019.

Variety	Plant establishment (plants/m ²)	Dry matter (t/ha)				Average height (cm)	
		Date	27 May	1 July	19 July		19 Aug
Brusher	142		0.26	0.59	1.16	1.05	21
Durack	144		0.32	0.93	1.28	1.40*	26
Mulgara	130		0.26	0.71	1.33	1.13	22
Swan	129		0.31	0.75	1.21	1.03	21
Wallaroo	148		0.32	0.80	1.33	1.03	24
Wintaroo	127		0.27	0.65	1.21	1.06	22
Yallara	167		0.31	0.85	1.40	1.57*	26
Moby barley	136		0.32	0.79	0.79	1.18	8
<i>LSD (P=0.05)</i>	22		<i>ns</i>	<i>ns</i>	0.21	0.24	2

*Sampled on 23 August

Table 2. Feed quality of oaten hay varieties sampled on 2 September 2019 at Kimba.

Variety	Crude protein (% of dry matter)	Acid detergent fibre (% of dry matter)	Neutral detergent fibre (% of dry matter)	Digestibility (DMD) (% of dry matter)	Est. metabolisable energy (Calculated) (MJ/kg DM)	Water soluble carbohydrates (% of dry matter)
Brusher	13.3	19.7	43.3	77.9	11.8	23.3
Durack*	9.4	20.8	40.0	76.2	11.5	33.9
Mulgara	10.6	21.6	42.1	76.7	11.6	27.0
Swan	10.3	19.8	41.8	78.2	11.8	29.8
Wallaroo	10.1	21.6	45.2	74.6	11.2	23.9
Wintaroo	11.0	20.1	41.4	78.8	11.9	29.0
Yallara*	8.8	20.1	39.2	77.9	11.8	36.0

*Sampled on 23 August

Yallara is a medium tall, early to mid-season variety. Released in SA in 2009, Yallara is a milling line. Yallara was evaluated for hay production, and hay yield is similar to popular hay varieties with excellent hay quality.

Brusher is an early to mid-season tall line which is three to seven days earlier to head than Wintaroo and this suits it well to low rainfall areas. It has good early vigour, and excellent hay yield in low to medium rainfall zones and has consistently had excellent hay quality to match the yield. Brusher is an improvement compared to Wintaroo for hay quality, stem rust, leaf rust, bacterial blight and septoria resistance. It is resistant but moderately intolerant to CCN and stem nematode.

For further information regarding other oat varieties please see EPFS Summary 2018, p100.

What does this mean?

2019 was a very tough season at Kimba. The season started well with seeding occurring after 16 mm of rainfall, but only small rainfall events followed with a dry winter and spring. Plant growth was very slow due to drought stress.

Durack and Yallara had the greatest dry matter production in a tough season and matured earlier than the other varieties. There were no differences in feed quality between the varieties at Kimba in a very dry season. Durack matures for hay cutting at a much earlier time than other varieties than growers may be used to, so this may need to be factored into seasonal work programs.

In 2019 in drought conditions, Durack and Yallara were the best hay oat varieties. In 2018 Brusher and Wallaroo also performed well. All oat varieties achieved over 8% protein and estimated

metabolisable energy greater than 9 MJ/kg DM in both seasons, so would meet export quality standards. Other export standards that need to be met include colour, weather damage and weed seeds.

The recommended oat varieties to grow in the Kimba region based on these local trials would be Durack, Yallara, Brusher or Wallaroo.

Acknowledgements

The BigFIG group wish to acknowledge funding from BALCO and National Radioactive Waste Management Facility Community Benefit program.

Thanks to Trevor, Kerri and Randall Cliff for having the trial on their property and to BigFIG for the opportunity to run the trial. Thank you to Steve Jeffs and Katrina Brands for helping with the trial sowing and sampling, and Balco for providing the seed.

