

Late sown cereals yield exceptionally well in 2022

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KEY MESSAGES

- Four late-sown cereal small plot trials were implemented along the South Coast between Albany and Esperance in 2022. Each included three times of sowing (between Aug-Sept), two wheat and three barley varieties and two nitrogen strategies.
- The trials implemented demonstrated that crops can be successfully established in late winter and early spring with barley yields as high as 7 t/ha harvested at the Munglinup trial site with a late-August sowing date.
- There was no significant yield or quality difference between the short season and main season varieties selected. Yield response to the nitrogen strategies was also variable.

METHODOLOGY & TREATMENTS

Four small plot trials, with similar treatments and trial designs, were implemented along the South Coast of WA in 2022. Two of these were located in the Albany Port Zone (Green Range and Needilup) and two in the Esperance Port Zone (Munglinup and Condingup). Each trial site included:

- Three times of sowing (late August, mid-September, late-September)
- Two wheat (Vixen and Scepter) and three barley varieties (Maximus, Planet and Rosalind)
- Two nitrogen treatments (High - 80 units of nitrogen, Low - 40 units of nitrogen)

The trials were sown by experienced trial providers and were monitored throughout the growing season. Measurements for each treatment across each time of sowing included:

- Plant establishment (plants/m²)
- Growth stages
- Harvest yield (t/ha)
- Grain protein (%)

RESULTS & DISCUSSION

Table 1 is a concise summary of the impact of the second and third time of sowing dates in relation to the yields achieved in time of sowing one (TOS1). All average yields for each crop type were below the first time of sowing averages, with the exception of the wheat at Condingup. In Condingup, 112mm of rainfall fell in August impacting the first time of sowing (waterlogging). It should also be noted that the second and third time of sowing at the Green Range site was also impacted by waterlogging.

In regard to variety selection, given the soft, cool finish (except perhaps at the Needilup site), the main season varieties yielded mostly on par with the short season varieties. At the drier and warmer Needilup site, it was much the same story, with yields for each time of sowing across all the varieties within 0.5 t/ha of each other. This gives growers further confidence to seed the typically 'on-hand' main season cereal varieties, rather than specially

Table 1: Average yields for each crop type with yields for TOS2+3 expressed as a percentage of TOS.

Crop type & location	TOS 1 Yield t/ha	TOS2 as a % of TOS 1 Yield	TOS 3 as a % of TOS 1 Yield
Green Range Barley	4.7	69.6%	46.5%
Green Range Wheat	5.2	72.7%	55.7%
Needilup Barley	2.7	99.0%	81.8%
Needilup Wheat	2.9	96.3%	74.8%
Condingup Barley	7.0	78.2%	64.7%
Condingup Wheat	5.2	108.5%	90.3%
Munglinup Barley	6.6	72.9%	52.2%
Munglinup Wheat	6.0	64.9%	34.2%



Figure 1: Munglinup TOS1 (L), taken on the 2 November 2022 & Green Range TOS1&2 (R) taken on the 3 November, 2022.

purchasing a short-season variety for a winter/spring seeding. Interestingly, the wheat yielded slightly higher at the Green Range and Needilup sites and the barley yielded better in the Munglinup and Condingup trial sites.

The yield and grain protein data from the high and low nitrogen fertiliser regimes was highly variable, with only a slight positive grain protein trend detected at the Condingup site in response to a higher nitrogen fertiliser rate. The overall lack of response may have been a result of the nitrogen being applied all up-front (at seeding). Given the rainfall that fell between August and December across all sites, much of this may have leached before uptake by plants. It makes the case for split nitrogen applications (particularly in wetter conditions).

CONCLUSIONS

The trial sites implemented as part of this project have demonstrated the adaptability of cereal cropping systems along the South Coast of WA. The data gathered from each trial site shows that seeding cereals in late-winter and/or early spring was profitable in the favourable conditions of 2022.

Although this investment was extremely successful, there are still some questions around the viability of late sown crops in less favourable conditions i.e., how would they perform with a hotter, drier finish. There are also grower questions around better understanding nutritional requirements, with a split application of nitrogen potentially having a greater impact on yield and grain protein compared the 'all nitrogen up-front' strategy.