BREAK CROPS AND INTERCROPS

Break crop species and varieties on yield of wheat, MRZ Mid North (Warnertown), South Australia

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Aim
To evaluate the effects of break crop species on the yield of subsequent wheat crop.

Treatments
Six break crop species and their varieties

Break crop species	Varieties
Canola	ATR Bonito, ATR Stingray, Hyola 559TT, Nuseed Diamond, Pioneer 43Y92 CL, Pioneer 44Y90 CL
Chickpea	Genesis 090, PBA Monarch, PBA Striker
Faba bean	Nura, PBA Marne, PBA Samira
Field pea	Kaspa, PBA Butler, PBA Coogee, PBA Percy, PBA Twilight, PBA Wharton
Lentil	PBA Blitz, PBA Bolt, PBA Flash, PBA Hallmark XT, PBA Hurricane XT, PBA Jumbo2
Vetch	Rasina, Timok, Volga

Results and Interpretation

- Key Messages: The grain yield of wheat sown after pulses were 300 kg/ha higher on average compared to wheat sown after canola. The yield gap between the canola-wheat rotation and canola-pulse rotation was a result of reduced soil nitrogen levels following harvest of the break crop phase in 2018.

- Soil nitrogen and moisture at post-harvest 2018: Higher levels of nitrogen remained in the soil when pulse crops are used as break crops (Figure 1). The soil moisture content did not differ based on the break crop species.

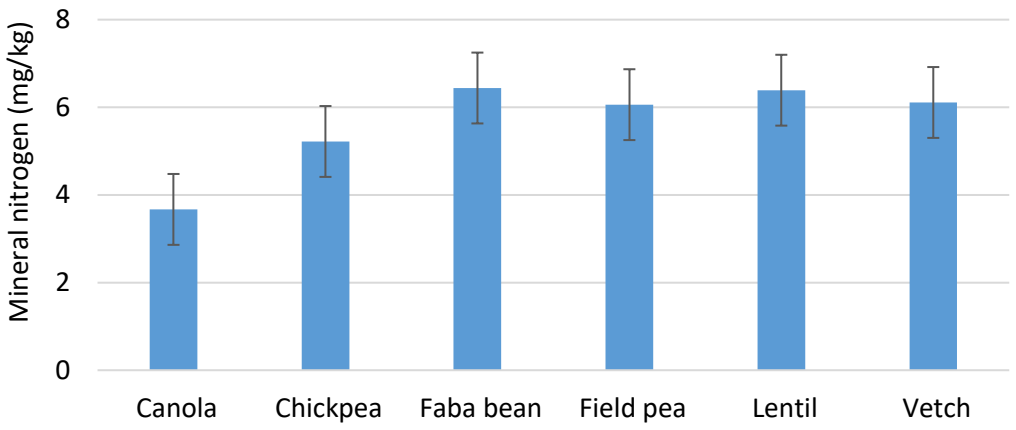

Figure 1. Mineral nitrogen levels at 10-30 cm soil depth following the harvest of break crop species at Warnertown, 2018. Error bars represent least significant difference (P<0.05).

- Wheat grain yield: Wheat grain yields were about 300 kg/ha higher when they were grown after a pulse crop compared to canola. The yield of wheat did not differ between species or the variety of the pulse crop (Figure 2), suggesting similar yield benefits from different pulses in this season. The wheat crop yield benefit found in this trial supports previous research on break crops.

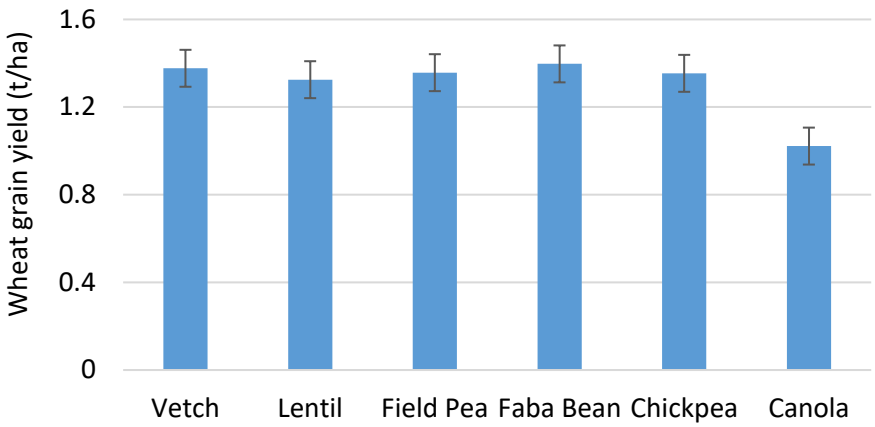

Figure 2. Yield of wheat grown after different pulse crops and canola in Warnertown, 2019. Error bars represent least significant difference (P<0.05).

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