

## Kerribee 2009 Field Pea and Common Vetch Variety Trials

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Kerribee NSW MSF core site

### Key messages:

- Common vetch and field peas have the potential to be used as break crops in the NSW Mallee.
- Common vetch produced more dry matter but generally much lower seed yields than field peas in an average growing season.
- It is unlikely that field peas or vetch could be commercially grown for seed other than in above average growing seasons.

### Aim:

- Evaluate the growth and seed yield of commercially available and advanced breeder varieties of field peas and common vetch for use as break crops in the NSW Mallee.

### Background:

Variety trials for common vetch and field peas were conducted in response to NSW Mallee croppers seeking information on the performance of these varieties as break crops.

Traditionally wheat has been the predominant crop used in the NSW Mallee due to reasonable yields and prices, continuous cropping and the absence of other suitably adapted planting options. However, in recent years new low rainfall annual legume varieties which include field peas and common vetch have emerged from breeding programs with the potential to be incorporated into NSW Mallee farming systems.

### About the trial:

#### Trial site:

Kerribee is located approximately 25 km north east of Mildura Vic in the NSW mallee cropping region.

Soil type: Belah (clay loam).

Trial plots were sown using an 8 row plot seeder with 18cm tyne spacing without press wheels into the previous years wheat stubble.

### Field Peas:

An S4 breeder's variety trial comprising 9 commercially available and 23 breeder varieties (32 total) was planted on the 28<sup>th</sup> May 2009.

Trial Design: Randomised block design with each of 32 varieties replicated 3 times so that there were 96 plots of 1.20m x 18m.

Fertilizer: 60 kg/ha of DAP was applied during sowing.

Sowing rate: 80-110 kg/ha based on seed viability.

Inoculant: Group E.

Herbicides: Glyphosate pre-sowing, Broadstrike post emergent for broad leaf weeds and Verdict post emergent to control grass weeds.

### Common Vetch:

The 3 commercially available low rainfall varieties of common vetch and 3 advanced breeder varieties were planted on the 12<sup>th</sup> May 2009.

Trial Design: Randomised block design with each of the six varieties replicated 3 times so that there were 18 plots of 1.20 x 21 metres.

Fertilizer 100 kg/ha single super.

Sowing rate: 30 kg/ha.

Inoculant: Group E.

Herbicides: Glyphosate knockdown pre-sowing and Verdict post emergent to control grass weeds.

### **Assessments:**

The collection of data at the trial site included:

- Estimates of common vetch and field pea dry matter and seed yield.

### **Results:**

When writing this article, detailed analysis of the results had not been completed and so only preliminary results are shown here.

Rainfall for the growing season (April-October) was average (decile 5) with 190mm. The season started well with a break of 31mm in April along with stored soil moisture from the previous summer. However, by the end of August in the absence of meaningful falls the crops were severely moisture stressed but were revitalised by 45mm in September.

Field Peas: Tables 1 and 2 Seed yield for the 9 commercial pea varieties and the 6 best performing breeder varieties displayed in ascending order.

**Table 1.** Field pea seed yield.

Variety	Rank	Seed yield (kg/ha)	% of site mean
OZP0803	1	641	144
OZP0602	2	596	134
BUNDI	2	596	134
OZP0703	3	567	128
OZP0820	4	520	117
AP3	5	500	113
KASPA	6	496	112
OZP0809	7	484	109
MORGAN	8	424	96
STURT	9	415	93
MAKI	10	387	87
PARAFIELD	11	310	70
YARRUM	12	292	66
CELINE	13	261	59
EXCELL	14	174	39
Site mean		444	

**Table 2.** Field pea dry matter yield

Variety	Rank	DM kg/ha leaf & stem	% of site mean
OZP0803	1	1435	130
KASPA	2	1344	122
MORGAN	3	1320	120
OZP0606	4	1261	114
BUNDI	5	1208	109
PARAFIELD	6	1201	109
AP3	7	1200	109
OZP0804	8	1185	107
OZP0801	9	1176	107
OZP0806	10	1159	105
EXCELL	11	991	90
MAKI	12	893	81
CELINE	13	824	75
STURT	14	752	68
YARRUM	15	609	55
Site mean		1104	

Seed yield from the commercial varieties was highest for the early flowering white seeded Bundi ranked equal 2<sup>nd</sup> overall with a 20% higher seed yield than the late flowering dun type grain Kaspera ranked 6<sup>th</sup>, a 40% higher yield than the next highest the late flowering dun type Morgan ranked 8<sup>th</sup> and a 343% higher yield than the lowest ranked early-mid flowering blue seeded Excell.

Of the breeder's lines OZP0803 ranked 1<sup>st</sup> overall producing a 7% higher seed yield than Bundi with 5 other breeders varieties producing higher seed yields than 6<sup>th</sup> ranked Kaspera.

Dry matter (DM) yields for the commercial varieties was highest for Kaspera ranked 2<sup>nd</sup> overall followed by Morgan ranked 3<sup>rd</sup> with Kaspera yielding 11% more DM kg/ha than 5<sup>th</sup> ranked Bundi and a 221% higher yield than the lowest ranked Yarrum.

Based on one years data from 2009 an average growing season it is difficult to make assumptions about the commercial returns that could be achieved from growing field peas in the NSW Mallee. However, of the commercially available varieties, Bundi and Kaspera showed the most potential, although, Parafield and Sturt have also traditionally performed well in the Victorian mallee.

When considering a variety to grow, croppers should not only consider seed and DM production but also assess the varieties for ease of harvest, disease resistance and the market demand for the three types of field pea grain - blue, white and dun.

## Common Vetch

**Table 3.** Vetch dry matter

Variety	Rank	mean leaf and stem kg/ha	% of site mean
Morava	1	2200	111
SA34831	2	2000	101
SA34458	2	2000	101
Blanchefleur	3	1930	97
SA34739	4	1900	96
Rasina	4	1900	96
Site mean		1989	

**Table 4.** Vetch seed yield. yield

Variety	Rank	mean seed yield kg/ha	% of site mean
SA34739	1	346	176
SA34831	2	309	157
SA34458	3	280	142
Blanchefleur	4	118	60
Rasina	5	99	50
Morava	6	27	14
Site mean		197	

DM production for the commercial varieties was highest for Morava ranked 1<sup>st</sup> overall a late maturing replacement for the varieties Blanchefleur and Languedoc with a 14 % higher yield than 4<sup>th</sup> ranked Blanchefleur and a 16% higher yield than the lowest ranked early flowering Rasina.

Of the breeders varieties DM production was highest for SA34831 and SA34458 both ranked 2<sup>nd</sup> producing 10 % less DM than Morava while SA34739 was ranked lowest with Rasina.

Seed yield was highest for the 3 breeders varieties with the highest SA34739 ranked 1<sup>st</sup> producing 293% more seed than 4<sup>th</sup> ranked Blanchefleur followed by Rasina and then Morava.

In the 2008 vetch variety trial which was a slightly below average growing season Rasina 2200 kg/ha produced the highest DM followed by Morava 1500kg/ha and then Blanchefleur 1270 kg/ha. For seed weights Rasina 102 kg/ha was highest followed by SA34831 95 kg/ha and then Blanchefleur 59 kg/ha.

The results from 2008-2009 showed that common vetch can produce useful amounts of dry matter for either grazing or green manure in average growing seasons but that yields in below average years are likely to be low.

Of the commercial varieties from 2 years of trials, both Morava and Rasina have performed the best along with the breeder's variety SA3483. It is unlikely however that seed harvesting would be commercially viable for any of the varieties except possibly in above average growing seasons.

**Who's Involved:**

The trials are supported by:

- SARDI
- MSF Inc
- NSW Industry & Investment

**Activities, Events and Industry Participation:**

- August and October 2009 Kerribee farm walks.

**Future Directions:**

In 2010, we plan to undertake fertiliser rate and Rhizobium inoculation trials with the best performing 2009 common vetch varieties.

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