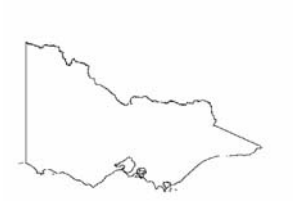

Pulse sowing dates and rates

Jason Brand VIDA - Horsham

Summary
The effect of sowing dates and rates on lentil, field pea and chickpea cultivars was investigated. The only experiment that was harvested was field peas; yields ranged from 0.2 to 0.7t/ha. The lentil and chickpea trials were not harvested due to the drought conditions.

Similar trials were also conducted at Rupanyup, but were not harvested due to the drought and several frosts.

Why it was conducted:
The development of new pulse cultivars has significantly different growth habits and disease resistances compared to older cultivars. Therefore agronomic management needs to be altered to optimise the grain yield benefits of these new cultivars. Trials conducted at Curyo and Rupanyup investigated the interaction between sowing date and sowing rate on the growth and yield of new lentil, field pea and chickpea cultivars. Information from these trials will form part of an agronomic package that will accompany the release of new cultivars.

How it was conducted:
Similar trials were conducted at both the Curyo and Rupanyup sites. Details listed below are for the Curyo site only as the Rupanyup site produced no results.

Sowing dates:
May 8th (sown dry), May 27th, June 24th.

Cultivars:

Table 1. Cultivar description of field peas used in the Curyo trial.

Cultivar	Leaf type	Plant height	Grain type	Lodging resistance	Flowering time	Ascochyta blight	Downey mildew	Powdery mildew
Kaspa	Semi-leafless	Semi-dwarf (T)	Dun	Excellent	Late	MS	R	S
Parafield	Conventional	Tall	Dun	Poor	Mid	MS	S	S
Snowpeak	Semi-leafless	Semi-dwarf (M)	White	Excellent	Early	S	R	S

T = tall, M = medium; S = susceptible, MS = moderately susceptible, MR = moderately resistant, R = resistant

Table 2. Cultivar description of lentils used in the trial.

Cultivar	Grain type	Vigour	Flowering time	Lodging resistance	Height	Botrytis	Ascochyta Blight	
							Foliage	Seed
Northfield	Red	Poor/Mod	Med/late	MR	Med/Short	S	R	R
Nugget	Red	Moderate	Med	MR	Med	MR	MR	MS
CIPAL102	Red	Poo/Mod	Med/late	MR	Med/Short	R	R	R

S = susceptible, MS = moderately susceptible, MR = moderately resistant, R = resistant

Table 3. Cultivar descriptions of chickpeas used in the trial.

Cultivar	Grain type	Grain size	Flowering time	Lodging resistance	Height	Ascochyta Blight
Howzat	Desi	Med/Large	Early	Fair/Good	Fair	MS
ICCV96836	Desi	Med	Mid	Very Good	Good	MR
Flip 94-90c	Kabuli	Med	Mid	Fair	Fair	R

S = susceptible, MS = moderately susceptible, MR = moderately resistant, R = resistant

Sowing rates:
Lentils - 60, 90, 120, 150 and 250 plants/m^2
Field Peas - 15, 35, 55, 75 and 110 plants/m^2
Chickpeas - 15, 30, 45, 60 and 90 plants/m^2

The experiment was designed as a split plot with 3 replicates (i.e. the sowing rates and cultivars were randomized within each replicate of the sowing time).

Paddock management
Grain legume mix with 2% zinc at 60 kg/ha was applied with seed at sowing. Post sowing pre-emergent herbicides was used for broadleaf weed control and post-emergent herbicides for grass control. Trials were sprayed for insect pests and fungal diseases (chickpeas only) when required.

Measurements:
Several weather, soil and plant measurements were recorded, however this report focuses mainly on grain yield and to a lesser extent emergence. Details regarding other measurements can be provided upon request.

Results of the trial (Curyo only):
Emergence and growth:
Total plant emergence was similar to the targeted sowing rates. Plant growth during the year was generally slow due to the extremely low rainfall. Plants were stunted at harvested. No disease was noted in the lentils and chickpeas, however there were moderate levels of black spot in the field peas. No frost damage was noted in the trial.

Grain yield
Lentils were not harvested as they were too short. An attempt was made to harvest the chickpeas, but attempts were aborted after one replicate as the header was not able to collect all the seed (up to 50% seed loss) as the plots were too light. It was estimated that if we could have harvested the lentils and chickpeas maximum grain yields would have been approximately 0.3 t/ha and 0.6t/ha, respectively. Highest yields were always at the earlier sowing dates.

Field peas were harvested with grain yields ranging between 0.2 and 0.7 t/ha. Kaspa and Parafield produced the highest grain yields at the May 8th sowing date, all varieties were similar at the May 27th sowing date and Snowpeak produced the highest grain yields at the June 24th sowing date. Early sowing (May 8th and 27th) for Kaspa and Parafield produced yields approximately 40% greater than the later sowing (June 24th). Optimum sowing rates were 35-55 plants/m^2 for all cultivars.

Interpretation
No clear conclusions can be drawn from the trials in 2002 due too the extremely low yields and variability across the site. The new ascochyta resistant chickpea lines appeared to have good yield potential and it will interesting to retest them in 2003. Visually it appeared that earlier sowing would produce highest yields.