

Fenugreek variety trial

Kate McCormick and Rob Norton, JCCI, Longerenong College, University of Melbourne

SUMMARY

Varieties 150265 and 150292 were the highest yielding varieties at Birchip and over all sites. Dry matter increased ten-fold from early flowering to mid pod fill which may have implications on the optimum time for terminating crop growth for green manuring.

Fenugreek is a legume grown to a limited extent in the Wimmera and southern Mallee as a green manure or seed crop. A collaborative project between Longerenong College and AWB Limited Seeds tested 100 fenugreek varieties in 1997 and 1998. This collection varied greatly for grain and dry matter yield, plant height, flowering time, seed size and colour. Given this variability it was thought that different varieties might be suited to different locations and have different end uses.

METHOD

This experiment involved:

- Five sites across the Wimmera and southern Mallee (Table 1.33)
- Six varieties replicated three times (Table 1.34)
- Target plant density of 120 plants/m²

Table 1.33 Description of sites

Site	Trial manager	Date sown	Annual rainfall	Soil type
Birchip	Birchip Cropping Group	June 11	375	Mallee clay loam
Donald	Avon Richardson Cropping Group	June 1	400	Red clay loam, poorly structured
Warracknabeal	IAMA Agronomy Site	June 24	416	Clay loam
Longerenong	Longerenong College	June 9	420	Wimmera grey clay
Dimboola	Longerenong College & AWB Seeds		412	Clay loam

Table 1.34 Variety description

Variety	Origin	Seed size	Sowing rate	Seed colour	Flowering time*	Possible end use
150000	Unknown	small	22	yellow	early	Seed for spice
150212	AWB Seeds					Green manure
150212	Jordan	large	36	yellow	very early	As for 150000
150225	Afghanistan	very small	16		very late	Green manure?
150265	Morocco	med	31	yellow	early	Forage?
150277	Egypt	large	33	green	early	As for 150000
150292	Turkey	med	30	green	early	Seed for Egyptian, beverage
						Green manure
						As for 150000

*compared to Dundale field pea

RESULTS AND INTERPRETATION

The data presented in Table 1.35 compares the results of the Birchip site to the mean of all sites. Plant establishment at Birchip was good with an average plant density of 100 plants/m². Growth was quite slow until flowering and then a 10-fold

increase in dry matter occurred between flowering and mid pod fill. Bacterial blight caused by *Pseudomonas syringae* affected most varieties with symptoms first evident at the time of the main field day in mid-September. By late October this disease had caused some plant death and had severely reduced dry matter in the worst affected varieties. I50212 and I50277 were most susceptible and I50225 and I50292 were least susceptible.

Table 1.35 Results

Variety	Days from sowing to flowering		Dry Matter (t/ha)				Grain Yield (t/ha)		Grain Yield (t/ha)	
			Early flowering		Mid Pod Fill		Hand harvest		Machine harvest	
	Bir	All sites	Bir	All sites	Bir	All sites	Bir	All sites	Bir	All sites [#]
I50000	84	87	0.55	0.48	4.84	5.01	1.14	1.66	0.88	1.31
I50212	77	79	0.52	0.49	3.58*	4.65	1.3	1.68	0.87	1.30
I50225	108	109	0.35	0.27	4.42	3.83	1.13	1.54	0.87	1.28
I50265	86	90	0.59	0.50	4.69	4.94	1.12	1.86	0.95	1.64
I50277	82	82	0.65	0.56	3.39*	4.18	1.03	1.57	0.72	1.22
I50292	88	92	0.45	0.39	4.93	4.46	1.33	2.07	0.98	1.54
Value	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NS	<0.05	0.05	<0.05
LSD	1	1	0.19	0.07	0.9	0.60		0.29	0.16	0.08

* Affected by bacterial blight

[#]Does not include Donald and Warracknabeal

Birchip yields were less than the mean of all sites, which was expected in light of a below average GSR and lower GSR than the Wimmera sites. Bacterial blight also contributed to poorer yields at Birchip. The Donald site was the worst performer with a mean hand harvest yield of 0.5 t/ha. This was due to a combination of below average GSR, poor soil structure and severe silver grass infestation. I50265 and I50292 yielded well at Birchip and over all sites and I50212 yielded well despite bacterial blight. These three varieties warrant further investigation for potential release.

COMMERCIAL PRACTICE

Pending further results some varieties may become available in the next few years.

I50265 has performed most consistent over 3 years while the early flowering I50212 has performed well in the dry seasons of 1998 and 1999. I50292 performed well at all sites in 1999 except Donald and was less susceptible to bacterial blight.

The aim of green manuring is to achieve a high dry matter production to increase the amount of nitrogen available to the following crop. Fenugreek growth increased ten-fold between early flowering and mid-pod fill. Termination of crop growth at early flowering will result in less available nitrogen than termination mid to late flowering. Fenugreek may need to be terminated later than vetch to achieve similar nitrogen benefits. However, crop termination at the time of peak dry matter (mid pod fill) may reduce the amount of soil water available for the next crop.

The main risks of growing fenugreek are:

- susceptibility to bacterial blight
- volatile seed market and fluctuating prices

- lack of know-how when growing something new
- no proven post sowing pre-emergent weed control options for broadleaf weeds.

While some growers have had great success with fenugreek, it is a high-risk venture so your ability to cover losses needs to be accounted for. If you can not afford to blow it, perhaps you should not grow it.

ACKNOWLEDGMENTS

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