



# SA Graingrowing

## Canola on Upper Eyre Peninsula

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An SA Grain Industry Trust-supported project

Farmers on upper Eyre Peninsula lack the rotational options available to those in higher rainfall districts, so research began in 1994 to determine if canola was a crop which could be successfully grown and the management techniques needed to achieve good results.

The research has shown that for this region where rainfall averages less than 350 mm a year ...

- Canola is an opportunity crop.
- Best results are achieved when it sown as early as possible after the seasonal break, providing weed control is not compromised, and before the end of the third week in May.
- Sowing rates of 3 to 5 kg/ha are appropriate.
- Good insect control is essential.

### Canola – the plant

This oilseed is being widely grown in Australia.

It is valued for its cash returns and for its impact in a rotation as it is not a host for major soil-borne diseases such as take-all.

Its decaying roots release compounds which are toxic to fungal inoculum in the soil – a process known as biofumigation.

Canola is rated as moderately resistant to the root lesion nematode, *Pratylenchus thornei*, and moderately susceptible/susceptible to *P. neglectus*.

Blackleg is the disease which most affects susceptible canola varieties in Australia although there are now many varieties with good resistance to this disease.

Rotations with canola provide the opportunity to vary herbicides and to delay the onset of herbicide resistant weeds.

### Eyre Peninsula research

All trials were supported by the SA Grain Industry Trust and carried out by officers from the SA Research and Development Institute. Time of sowing trials were sown at Minnipa and Wudinna and plant density trials at these locations plus Tuckey to determine the effect of delayed sowing and plant density on grain yield and quality. This work began in 1999.

- Minnipa Agricultural Centre – has an average annual rainfall of 326 mm, the soil at the trial site was a sandy

loam and the pH (water) was 8.9

- Tuckey – average annual rainfall is 335 mm, the soil at the trial site was a sandy clay loam and the pH was 8.9.
- Wudinna – average annual rainfall is 327 mm, the soil at the trial site was a sandy loam and the pH was 9.1.

All trials, except at Wudinna, were direct drilled using knife points into standing stubble.

At Wudinna trials were sown with knife points into stubble that had been worked in March.

During the course of the trials various seeding rates were tested aimed at determining the optimum seeding rate for maximum yield. DAP and urea fertilisers were applied at rates that replace nutrient removal of a 1t/ha yield. Herbicides were applied according to district practice.

The fertiliser was deep-banded to minimise any toxicity effects on the newly-emerging canola.

Various canola varieties with a range of maturities were used in the trials.

### Summarised results:

- **Variety type** – if the paddock is virtually free of broadleaf weeds the best option is to use conventional varieties. If brassica weed control is an issue, Clearfield and Triazine-Tolerant canolas are superior. Clearfield has superior yields and oil content compared to triazines, however the herbicide package is more expensive.



- **Sowing rates** of 3-5 kg/ha are appropriate for low rainfall areas of below 350 mm a year. In ideal conditions, 3 kg/ha is adequate but if emergence might be reduced by fertiliser toxicity or drying soil and if good weed competition is required, the higher rate should be used. For every 1 kg of seed planted, between 10 and 20 plants/m<sup>2</sup> emerged in the trials – emergence being reduced by fertiliser toxicity, lack of soil moisture at sowing, sand blasting and various insects.
- **Sowing depth** – as shallow as possible, ensuring that seed is in contact with moist soil. In drier conditions it is better to sow deeper into moist soil than risk uneven emergence. Sowing deeper (5 cm) reduces emergence so should not be adopted as standard practice.

- **Maximum yield** is achievable provided there are 20 to 25 plants/sqm evenly spread and if so, re-sowing should not be necessary.
- **Sowing soon after the break** maximises yields provided weed control is not compromised. Yield losses of 7 to 14 per cent per week can be expected from delayed sowing (see Table 1). Sowing by the end of the third of May reduces the risk of the crop flowering and trying to set seed in hot conditions later in the season.
- **Opportunity crop** – canola is an opportunity crop for this region.

Sowing before the fourth week in May and at high canola prices gives a reasonable chance of growing a profitable crop. On average, Monty has yielded 0.75 t/ha in the past eight years at Minnipa when sown after the opening rain.

Variety	Wudinna 2001		Minnipa 2001	
	Yield of 1st sowing (kg/ha)	Yield loss from delaying sowing (kg/ha/week)	Yield of 1st sowing (kg/ha)	Yield loss from delayed sowing (kg/ha/week)
Monty	1559	93	1761	219
Ag Outback	1587	126	1763	174
Mystic	1469	95	1777	267
Emblem	1407	101	1559	207
Oscar	1407	101	1647	222
Mustard	1394	111	1333	57
ATR_Hyden (tt)	1320	101	1338	89
Surpass 501TT (tt)	1307	122	1424	271
Karoo (tt)	1218	62	1367	217
Pinnacle (tt)	1114	45	1304	72
Drum (tt)	1090	83	1238	246
Surpass 300TT (tt)	999	34	991	208
Mean conventional	1486	103	1701	218
Mean triazines	1175	74	1277	184
LSD (P=0.05)	105		116	
Sowing date	May 29		May 22	

Table 1: Grain yields from the first time of sowing and the yield reduction of each variety due to delayed sowing.

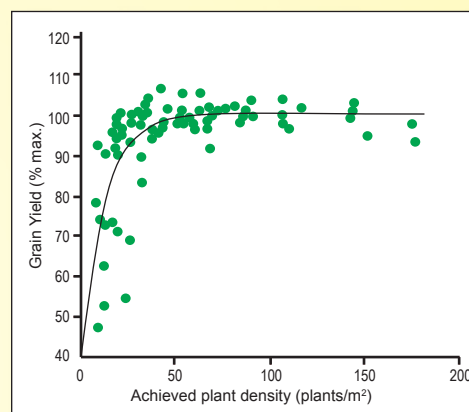


Figure 1: Effect of plant density on grain yield at three sites during 1999, 2000 and 2001. Yield is expressed as a percentage of the maximum yield. Yields above 100 pc are because of experimental variation in the field. The graphs show that maximum yields were obtained when plant densities of 20-25/sqm were first achieved.

### Diseases

Upper Eyre Peninsula is a low risk area for blackleg, however there should be a three-year break between canola crops; avoid sowing canola adjacent to previous season's crops; and grow varieties with a blackleg-resistance rating of 7 or higher if possible.

### Pests

Inspect crops for pests before, during and immediately after crop emergence. Bare earth spray for red-legged earth mite is vital as prevention is better than, cure and control other pests (lucerne flea and false wire worm) as necessary.

### Varieties

This region is suited to early-maturing varieties. Conventional – Ag-Outback, Rivette. Triazine – Surpass 501TT, Karoo, ATR-Beacon. Clearfield – 44C73.

### Further information:

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