3.5.5 Evaluation of European canola types at Lake Bolac - Lake Bolac, Vic

Location: Lake Bolac Research Site.

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Summary of findings:
- The European cultivars produced grain yields up to 4.78 t ha-1
- Grain yields from two of the European cultivars were significantly greater than JardeeTT but not significantly greater than Hyola 50 and 46Y83
- The later maturity of the winter types may provide different management options to growers including grazing and time of sowing.
- Further testing of the European cultivars will need to be conducted over more locations and seasons and under different management to determine their potential for the HRZ.

Background/Aim:
Winter canola types with high yield potential are grown in many high rainfall regions of the world. As with winter wheats, winter canola types require a period of cold temperature to trigger the reproductive phase. As a result they are much later maturing than the spring types traditionally grown in Australia. Winter types were eliminated from Australian breeding programs early on in the development of the industry as they were considered to be poorly adapted to the environment. Recent experiments have shown unexpected high grain yields in the HRZ of Victoria from winter canola types imported from Europe. At Hamilton in 2008, a winter canola type yielded nearly 20% more than the highest yielding spring type despite spring rainfall being approximately half the long term average and the winter type flowering 4 weeks later. The use of winter canola types for autumn grazing followed by a grain yield harvest in the same season has also gained considerable interest over the past few years. The aim of this experiment was to evaluate the grain yield potential of European canola types, in particular the long season winter types for their suitability to the high rainfall regions of southern Australia. The performance of 7 cultivars imported from Europe (6 winter types and 1 spring) was compared to 3 Australian spring types that performed well in NVT trials.

Rainfall:

Avg. Annual:	540 mm
Avg. G.S.R.:	401 mm
2010 Total:	749 mm
2010 G.S.R.:	506 mm

Varieties:
Hyola 50, 46Y83, JardeeTT (spring type controls) and 7 European types (6 winter, 1 spring)

Sowing rate: target plant number 50 plants m^{-2}

Sowing date: May 3

Fertiliser:
100 kg ha^{-1} MAP was sown with the seed at sowing + 70 kg ha^{-1} N (applied as urea) on September 2.

Herbicides :
- 5 May: TriflurX (2 l ha^{-1}) 3 May, Dual Gold (0.25 l ha^{-1}) + Fastac (0.1 l ha^{-1})
- 25 Jun: Metarex slug bait (3 kg ha^{-1})
- 8 Jul: Select (0.4 l ha^{-1}) + 1% Hasten

Treatments: 10 varieties x 4 reps

Plot size: 1.45 wide x 11.5 m long

Measurements:
plant establishment counts, phenology – date bud visible, 10% flowering, 50% seed green/brown, grain yield. Final grain yield determined from hand harvests taken from an area of $2m^{-2}$.

Tillage: Crops were sown on undrained flat ground

Soil Type: Clay loam

Soil test:
P (Colwell) 44 mg kg^{-1}, Nitrate N 40 mg kg^{-1}, Ammonium N 1.9 mg kg^{-1}, K 430 mg kg^{-1},
S 6.4 mg kg^{-1}, OC 2.4%, pH(H_2O) 5.4.

Results and discussion:
Annual and growing season (April to November) rainfall in 2010 was higher than the long term average. Waterlogging due to high winter rainfall (169 mm in August) and no drainage (crops were sown on the flat) is likely to have affected grain yields.

The winter canola types were approximately 4 weeks later to the bud visible and first flower stages than the spring types (Table 1). The European spring type (CBI8802) had a similar maturity to the Australian spring types but matured approximately 5 days later.

Yields ranged from 3.54 t ha^{-1} for JardeeTT to 4.78 t ha^{-1} for the European winter type CB2 (Table 2). Grain yields from CB2 and CBI8802 were significantly (P<0.05) greater than JardeeTT, otherwise yield differences between the other cultivars were not significant. The late maturity of the winter types may offer new management options including autumn grazing and earlier sowing.

Summary:
The spring and winter European cultivars demonstrated that they have a high yield potential in this environment. Further research will need to be conducted to determine their suitability over a range of seasons and soil types. Different management practices may need to be adopted (e.g. time of sowing) for their yield potential to be realised.

Figure 1: Monthly rainfall (mm) at Lake Bolac in 2010 compared to the long term average (LTA).

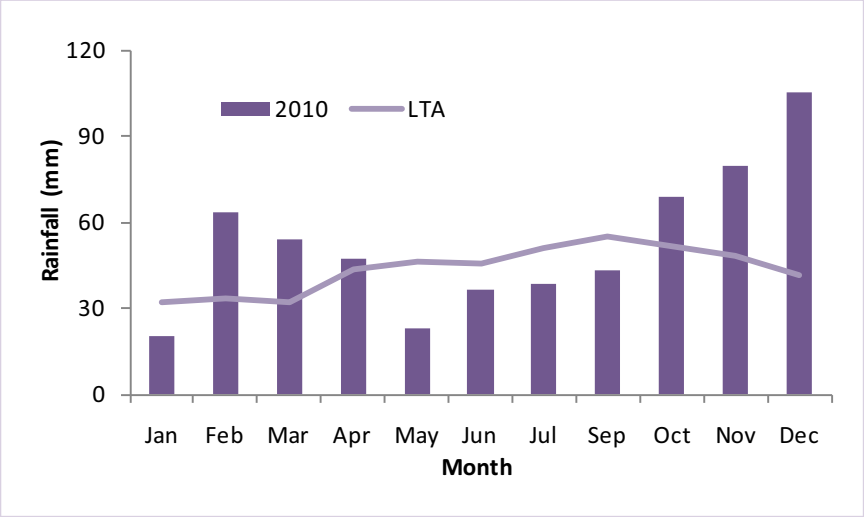

Table 1: Dates to bud visible, first flower and harvest (50% seeds green-brown) for 6 European winter canola types, 1 European spring type (CBI8802) and 3 commercial Australian spring types (46Y83, Hyola 50 and JardeeTT).

	Bud Visible	First Flower	Harvest
46Y83	28-Jul	3-Sep	1-Dec
Hyola 50	31-Jul	3-Sep	1-Dec
JardeeTT	28-Jul	3-Sep	1-Dec
CB1	26-Aug	3-Oct	14-Dec
CB2	26-Aug	29-Sep	14-Dec
CB3	26-Aug	25-Sep	14-Dec
Taurus	26-Aug	29-Sep	14-Dec
CBI206	26-Aug	29-Sep	14-Dec
CBI8802	31-Jul	3-Sep	6-Dec
CBIW208	26-Aug	29-Sep	14-Dec

Table 2: Grain yields (t ha^{-1}) from winter and spring canola types at Lake Bolac

Cultivar	Grain Yield (t ha^{-1})
46Y83	4.39
Hyola 50	4.40
JardeeTT	3.54
CB1	4.69
CB2	4.78
CB3	4.54
Taurus	4.20
CBI206	4.54
CBI8802	4.77
CBIW208	4.60
F Prob	**<0.05**
lsd	**1.172**