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DON'T SKIMP ON SOWING RATES FOR HYBRIDS

Hybrid canola seed is in hot demand this season, and some growers are looking to reduce seeding rates to cut the cost of growing the crop, as seed can be more than double the price of traditional open-pollinated seed, at around \$22 a kilogram.



FIRING UP: John Heard (right) is preparing to sow 600 ha of triazine tolerant and Clearfield hybrid canola this season at his Western Victorian property in Noradjuha. PHOTO: Felicity Pritchard.

But hybrid canola growers are being reminded that although sowing rates may be cut back a little, it is important not to go overboard as low plant densities can severely cut yields, especially in favourable seasons.

Pioneer Hi-Bred Australia sales manager Kevin Morthorpe said sowing equipment needs to be calibrated to match seed size of individual seed lots and seedbed conditions, rather than a “one sowing rate fits all approach”.

Mr Morthorpe believes the trend to reducing sowing rates over recent years is partly due to increased seed costs and partly due to good commercial practice, where leading growers can obtain excellent establishment of their crops, with up to 80 to 90 per cent of seeds becoming viable plants.

According to Better Oilseeds project coordinator, Felicity Pritchard, a number of factors need to be considered when calculating sowing rates for all crops. These included seed size, anticipated establishment percentage, average rainfall and row spacing. Ms Pritchard said that hybrid canola seeds are generally much bigger than open pollinated varieties, so each kilogram contains less seeds.

Some hybrid seed is twice the size of some open pollinated varieties, she said.

“With larger seed, a higher sowing rate is generally needed as you get a lot less seeds for each kilogram,” she said.

“However, a major positive with hybrids is that the percentage of plants establishing may be better due to the large seed and the hybrid vigour.”

In one Better Oilseeds trial held on South Australia’s Eyre Peninsula last year, only two-thirds of the seeds of the triazine tolerant, or TT, variety grew into plants, whereas nearly nine of every 10 hybrid seeds established as plants. The figure was eight in 10 for a conventional open pollinated variety.

The minimum percentage of commercial hybrid seeds germinating in laboratory tests is 85, although it may be higher and varies between seed companies.

However, good establishment of canola in a paddock may be compromised by a number of factors, in particular, dry conditions.

“Moisture plays a critical role in establishment of canola. In some of our trials in recent years, average canola establishment has been around 40 to 50 per cent due to poor seedbed moisture,” she said.

In trials conducted by Pacific Seeds in 2009 over a wide range of environments, an average 68 per cent of seeds established into plants. Where conditions are dry at sowing, growers should work on 30 to 50 per cent of seeds establishing as a rule of thumb, and 60 to 80 per cent under optimal conditions.

On average, establishment of hybrids is generally 10 per cent higher than open pollinated varieties, although the benefit appears to be less evident in some TT hybrids.

Ms Pritchard said the Better Oilseeds project, supported by the Grains Research and Development Corporation and the Australian Oilseeds Federation, had undertaken a number of trials investigating the optimal sowing rates and row spacings for canola in different environments.

She said the research suggests hybrids can sometimes respond well to densities of 60 plants per square metre in the high rainfall zone.

“One high yielding Better Oilseeds trial last year, conducted in conjunction with the LEADA group and Cummins Ag Services on the Eyre Peninsula, found a 14 per cent yield benefit in a hybrid with 61 plants/m², compared with 25 plants. These equated to sowing rates of 3.8 and 1.9 kg per hectare.”

The yields of two open pollinated varieties also tested at the site were unaffected by plant densities of 40 and 80 plants/m².

“Similar results have been found in other trials in South Australia, where around 60 plants/m² gives higher yields than 35” she said. “However, we need more data. Often there is no benefit in going over 40 plants/m².”

Mr Morthorpe said Pioneer Hi-Bred currently does not recommend sowing hybrid canola above four kilograms per hectare.

At very low plant densities, canola crops are less able to fully capitalise on the available light, moisture and nutrients.

However, in drier seasons or in dry locations where yields are less than around 1.5 tonnes per hectare, canola tends to yield well, generally as long as plant densities are around at least 40 plants/m²

“In some dry seasons growers can get away with plant densities as low as 20 plants/m², but sowing at very low rates does not leave much margin for establishment problems, and crops may be more affected by weed competition and insect pressure,” she said.

“It also increases the risk of a non-uniform plant stand. Research has found that hybrids should not be sown at less than two kg/ha.”

Ms Pritchard said wider crop rows can also reduce establishment of canola.

A Better Oilseeds trial conducted at Junee in southern New South Wales in 2008 found that widening rows from 18 to 30 and 35 cm appeared to reduce canola yields.

“The general trend was the wider the row, the less plants established for a given sowing rate. So growers using wider rows may need to actually increase their sowing rates slightly,” she said.

“Similarly, commercial trials have shown a trend for slightly lower establishment percentages at higher sowing rates.”

Last season Pacific Seeds conducted 15 trials across Australia, and their results suggest growers in low to medium rainfall zones target 25 to 40 plants/m² for hybrids and 40 to 60 plants/m² for the medium to high rainfall zone.

For open pollinated varieties, they suggest a higher plant density is needed at 30 to 50 plants/m² in the low to medium rainfall zones and 50 to 75 plants in the medium to high rainfall zones.

The company’s Canola Business Manager, Justin Kudnig said they will undertake more trials across 14 sites in Australia in 2010 to fine tune their recommendations.

Ms Pritchard said that some open pollinated varieties have performed extremely well in the National Variety Trials, NVT, and encouraged growers to examine the yield data for their region and to calculate target gross margins before committing to a particular canola variety.

To calculate sowing rate of canola:

Sowing rate in kg/ha = (target plants/m² x 1,000,000) ÷ (seeds/kg x expected establishment %).

For example, for a hybrid with 165,000 seeds per kilogram in a high rainfall zone with good seedbed moisture:

Sowing rate = (60 plants/m² x 1,000,000) ÷ (195,000 seeds/kg x 80% establishment) = 3.8 kg/ha.

For an OP variety with 395,000 seeds per kilogram in a high rainfall zone with good seedbed moisture:

Sowing rate = (70 plants/m² x 1,000,000) ÷ (300,000 seeds/kg x 70% establishment) = 3.3 kg/ha.
