Farmer retained canola seed demonstration

SUMMARY

This demonstration showed that there was little difference in yield between Premium seed and farm-retained seed. Because canola out-crosses, retained seed can result in "genetic drift" (regression or deterioration from the original qualities).

When deciding whether or not to purchase or keep seed consider not only the cost of the seed but the potential yield. If yield potential is high, your return can be improved by using Premium seed. Likewise, if yield may only be marginal then retaining seed could be a better option.

Canola seed can be retained if extra caution is taken to ensure that the process is done well to ensure quality seed. Sow a small area of your best paddock. Ensure that the area is well isolated from other canola crops and keep it free of weeds. Keep seed cool and dry and use for no more than two years. Test for germination and vigour, and treat seed.

The industry discourages farmers from retaining their own canola seed because of a potential reduced level of germination, lower vigour, lower yield, lower oil content, lower quality oil and disease carry over on seed. Recent research from Canada showed an average 7% yield penalty from farmer retained seed. Consequently 80% of Canadian growers use certified seed. Farmers argue that they prefer to know what weeds they sow when growing canola and therefore prefer to keep their own seed. However, farmers may be compromising potential yield, oil quality and disease control to save in most cases $10 per hectare when the cost of grading, storage and testing of retained seed is considered.

METHOD

Six canola varieties were collected from on-farm storage across the Southern Mallee. Certified seed was collected for the same six varieties. Note that the subsequent generations were not compared to their true original parent stock. Germination and vigour tests were undertaken on new, and on-farm stored canola seed by Agrifood Technology. Farmer stored and new canola seed were sown in adjacent un-replicated plots and yield and oil content were compared.

RESULTS

Table 5.6 Germination percentage of sown seed and yield of canola varieties

	Dunkeld		Grouse			Monty		Charlton		Pinnacle		Clancy	
Generation	1st	2nd*	1st	2nd	3rd	1st	2nd*	1st	2nd	1st	2nd*	1st	2
Germination %	95	93	95	78	92	n/a	83	93	92	98	86	93	87
Yield (t/ha)	0.77	0.84	0.80	0.81	0.92	1.10	1.01	1.20	0.87	0.90	0.99	0.76	0.76

*average from 2 sources

Oil content and quality values were not available at time of printing.

OBSERVATIONS

In general, new seed was higher in quality in terms of germination percentage compared to the farmer-retained seed. However, there were some exceptions where the farmer retained seed and certified seed had the same germination

percentage. Contributing factors to poor quality seed in on-farm stored seed was frost damage (Oct 98) and glyphosate damage from desiccation (not a recommended practice).

The demonstration showed that grain yields were not different between the first and second-generation seed sources. These results should be viewed with caution, as this was only a demonstration at a single location and more work is needed.

COMMERCIAL PRACTICE

Whilst the demonstration does not show a yield disadvantage to using retained seed, a grower should weigh the options carefully. Canola plants readily cross–pollinate, unlike cereals, which self-pollinate. Out-crossing can occur at a rate of 30%, changing the characteristics from one generation to another. The original varietal qualities can regress or deteriorate tending to more undesirable characteristics. This is called 'genetic drift'.

There are four stages to commercial seed production. The seed that is available commercially, Premium seed, is grown from Pedigree seed each year. The Pedigree seed is grown from Foundation seed, which is grown from Breeder seed. To reduce genetic drift, these crops are grown in isolation from other canola crops; hence varieties are kept true to type. Pedigree seed is given to commercial growers each year, the selected paddocks have to be free of canola for five years and must be at least 800m away from any other canola crops including volunteer plants. The crops are inspected several times, pre-sowing and post sowing to ensure that they are free of undesirable weeds. Different tolerance levels exist based on ease of grading weed seed out; specific standards change from state to state. There are certain prohibited weeds, such as radish and musk, which are not tolerated and the paddock is dropped. Premium seed does not mean weed free, but it will be graded to a high standard to ensure a quality product.

With margins tightening, many growers are looking to cut seed costs to reduce input costs. Whilst the savings for growers is about 5% of the overall variable input costs, the saving can be easily lost if their seed is of poor quality. A recent industry survey has found that up to 35% of growers retain their seed but 80% of those growers did not test for germination (Kondinin, 1998). Germination testing of retained seed is recommended.

Expected yield is a key factor in deciding whether to use certified or retained seed. If the area is generally marginal and canola is a high-risk crop, retained seed may be a good option as it costs less to put into the ground. In areas with a higher yield potential, using certified seed may improve yields.

If considering keeping your own seed, plan ahead. Select your best paddock, ensuring that the rotation suits and that it is isolated from other canola paddocks, and sow over a small area. Keep the paddock weed free and ensure that harvest and storage equipment is also clean. Make sure moisture content is low and storage is dry and cool. Test for germination and vigour, and treat seed. Use that seed for one or two years and then repeat the process.