

The cost of removing snails from canola

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Small conical snails are an emerging pest in southern WA, and even with appropriate pest management earlier in the year, grain can require cleaning at harvest to avoid costly downgrading. This concern is particularly relevant given the tightening of receival standards for snails in canola and barley during the 2019-2020 harvest. Stirling to Coast Farmers worked with farm advisor Rod Grieve (Evans and Grieve) to compare the options available for removing small conical snails from canola and estimate the costs.

Currently growers can either:

- Use a rotary grain cleaner,
- Use a snail crushing grain roller (either a small or large model), or,
- Use a professional grain cleaner.

The analysis considered:

- The capital costs of cleaners or rollers and associated field bins, augers etc.
- Depreciation of machinery over time.
- Labour and fuel cost.
- Estimated grain losses.
- Changes in grain quality (increases in admixture or seed damage).
- The change in cost with grain volume.

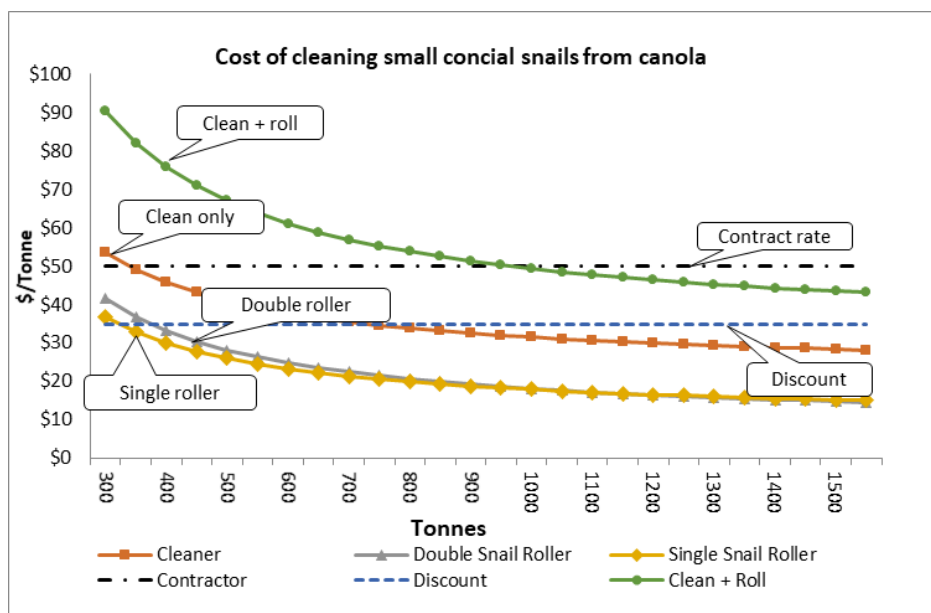


Figure 1. Graph showing the cost per tonne of cleaning small conical snails from canola with increasing volumes of grain. Methods assessed include cleaning with a rotary grain cleaner (Clean only), using a professional grain cleaner (Contract rate), using a single or double snail roller, taking the discount at delivery (Discount), or a combination of both cleaning and rolling.

Figure 2. The individual cost per tonne of cleaning small conical snails from canola for volumes between 300 and 1500 t. Methods assessed as for figure 1

	Tonnes processed													
	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	
Single Snail Roller	\$31	\$24	\$20	\$17	\$15	\$14	\$13	\$12	\$11	\$11	\$10	\$10	\$9	
Discount	\$35	\$35	\$35	\$35	\$35	\$35	\$35	\$35	\$35	\$35	\$35	\$35	\$35	
Double Snail Roller	\$36	\$27	\$22	\$19	\$16	\$15	\$13	\$12	\$11	\$10	\$10	\$9	\$9	
Contractor	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	
Cleaner	\$54	\$46	\$41	\$38	\$36	\$34	\$33	\$31	\$31	\$30	\$29	\$29	\$28	
Clean + Roll	\$85	\$70	\$61	\$55	\$51	\$48	\$45	\$43	\$42	\$40	\$39	\$38	\$38	

TAKING A DISCOUNT ON DELIVERY

In the 2018/19 harvest growers paid an average of \$35/t for delivering canola with >10 snails per 500g. In the 2019/20 harvest the limit will be 10 snails per 500g so for growers with >10 snails per 500g accepting a discount will not be an option. Some growers will be forced to use some form of cleaning to get snail numbers below 10 per 500g. A discount will still apply to canola with 2-10 snails per 500g and we will have to wait and see what the discount will be.

ROTARY GRAIN CLEANERS

Using a rotary grain cleaner was one of the more expensive cleaning options, largely due to grain losses, which we estimated at 5% with seconds valued at \$200/t. There is obviously a trade off between using finer sieves to remove more snails and incurring larger grain losses. In our canola trial reducing the slotted screed size by 0.3mm increased grain losses by 5% but reduced snail numbers by 95%. If growers can manage to process or use their seconds, this would reduce the cost of using a rotary grain cleaner.

SINGLE AND DOUBLE SNAIL ROLLERS

Using a snail roller alone was relatively cheap, because; although the capital cost of the machinery was similar to a rotary grain cleaner, there were no grain losses. Rolling grain to crush snails can damage the canola causing an increase in admixture and seed damage which we tried to account for in this analysis. If admixture increases by 1% at \$600/t, there is an added cost of \$6/t which contributes about 25% to the cost of rolling. While an increase seed damage could move grain from CAN1 into CAN2 grades, Rod has indicated that most contracts offer CAN2 at no discount, so we did not include a penalty for this change. If canola has a large number of snails, then rolling the grain once may not make the receival standards and rolling a second time may be necessary which will obviously increase the cost.

CONTRACT CLEANING

This was difficult to estimate as accurate information about the rates charged by professional seed cleaners to remove small conical snails from canola was hard to obtain. Anecdotally a number of seed cleaners have said that it is difficult to clean small conical snails from grain without incurring significant losses, particularly if the snails are the same size as the canola. We set the cost per tonne for cleaning the grain at \$30/t, which, with an estimated 5% grain losses, means that the cost of getting grain professionally cleaned works out at \$50/t. While we have set this as a flat rate here it is likely that the actual cost will vary depending on the volume to be cleaned.

CLEANING AND ROLLING

This was the most expensive option due to the capital cost to purchase a cleaner and roller, and grain losses associated with the cleaner. However, this system offers growers more flexibility, as, depending on snail numbers and sizes, growers can clean and/or roll in any given year. Growers can clean canola using finer sieves to bring snail numbers right down and lightly roll to crush any remaining snails. Using a light roll on most of the grain will keep admixture low and decrease seed damage, while the seconds from cleaning may then be rolled slow and tightly to recover some value. The value of using a bigger snail roller is that it can process grain at 40-50 t/hr and keep up with a rotary cleaner.

LABOUR COSTS

Cleaning or rolling grain is generally a full-time role and not something you can set and forget. Labour costs were based on the need for someone to constantly monitor the flow grain from chaser bins, through various augers and field bins to cleaners, rollers and ultimately onto a truck. In addition, augers and tractors need refuelling, the roller temperature may need monitoring and snail numbers need to be checked to get the best results. While labour contributed to between 2 and 7% of the cost of cleaning or rolling grain, which is a relatively small, it can be difficult to employ and retain reliable staff in any farming operation, and needing an extra employee over harvest in order to clean grain is no small thing.



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Thanks to Rod Grieve (Evans and Grieve) for performing the economic analysis for this report and Harry Jensen (Great Southern Seed Grading) for information on grain cleaning here and in South Australia.

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