Better management of small pointed snails: Svetlana Micic

Small pointed (conical) snails are becoming one of the main grain contaminants in the Albany Port Zone. A RCSN (Regional Cropping Solutions Network) project supported by Stirlings to Coast Farmers, SEPWA and Southern Dirt and led by Svetlana Micic (Entomologist, DAFWA) investigated better ways to manage snails.

Farmers in the Albany port zone have been looking at managing snails and weeds in one hit. Windrow burning is being used to manage weed seeds and they wanted to know how many snails did windrow burning actually kill? Burning caused 100% mortality of snails in the windrows. However, snails in the inter-rows could pose an issue for the next crop. In a cereal paddock, there was no significant difference in snail numbers in the windrows and outside of the windrows because of the amount of fallen stubble on the soil surface. Whereas in a canola paddock that had only standing stubble next to the windrows, the highest proportion of snails was in the windrow, and burning the windrow led to a significant reduction in the populations. So windrows will attract snails as long as there is little fallen stubble. The trial will continue in the 2016 growing season to find out whether burning windrows reduced the requirement for baits or reduced the contamination of snails in harvested grain.

Innovative blue sky ideas were also trialled. The use of microwave radiation to control small pointed snails was investigated. It takes 50 seconds to kills this species of snail versus 4 seconds to kill a slug. The amount of time it takes to kill a small pointed snail means the energy expenditure is likely to make it too expensive for broadacre cropping.

Farmers were also keen on the sprays to control snails. Sprays that were registered for use in other crops both in Australia and overseas were trialled. None were found to cause mortality in small pointed snails. The only chemical option for small pointed snails is to bait.

How to tell if you have snails that are becoming a problem?

If you answer yes to either of these two questions consider control measures now and in the lead up to sowing rather than after crops have germinated. Control of snails in seedling crops is often difficult and expensive, especially if large areas need re-sowing.

- Have you noticed snails in grain at harvest?
- Are snails easily seen in some paddocks?

How many snails are too many?

Snail numbers, especially the small conical snail, are easily misjudged as these snails may be found under stubble, in canola stalks, under rocks or on fence posts. A good way to find out how many snails are present is to use a 32 cm x 32 cm square quadrat and count all of the live snails in it. This is an area of 10% of a square metre so multiplying by 10 will give an estimate of snails per m². Taking lots of sampling points within paddocks known to have snails will give a good indication of their numbers and where they are mostly found. Live snails are those that when squashed are moist.

If you find snails numbers are above or close to thresholds (see Table 1), consider control options before seeding.

Table 1: Thresholds for control of snails in broadacre crops: SEE OVER

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### Species Crops

<table>
<thead>
<tr>
<th>Species</th>
<th>Oilseeds</th>
<th>Cereals</th>
<th>Pulses</th>
<th>Pastures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small pointed snail</td>
<td>20 per m²</td>
<td>40 per m²</td>
<td>5 per seedling</td>
<td>100 per m²</td>
</tr>
<tr>
<td>White Italian snail</td>
<td>5 per m²</td>
<td>20 per m²</td>
<td>5 per m²</td>
<td>80 per m²</td>
</tr>
</tbody>
</table>

**Control options before seeding**

**WEED CONTROL**

*Summer weed control*
- A combination of killing weeds and using control methods such as burning stubbles and using snail baits can reduce snail numbers by up to 95%.
- Uncontrolled summer weeds will provide habitat and food sources for snails.

*Fenceline weed control*
- Snails reproduce less on bare ground.
- Maintaining a weed free zone approximately two metres from either side of a fence line will help to remove potential breeding grounds.

**GRAZING STUBBLE**
- Grazing animals will knock snails from stubble and may also trample them.
- Control of snails by grazing is variable and will depend on livestock numbers and movement.
- Grazing helps to reduce stubble ground cover and decrease refuges for snails.

**BAITING**

Snails will only be controlled effectively by baits if they are mobile and looking for food.

*When to bait:*
- The best time to apply snail pellets is early in the season when morning temperatures are low and dew forms, and after the first good germinating rains - this is when snails begin emerging and are looking for food.
- Killing mature snails before autumn egg laying reduces the potential population build up for that season.
- Late bait applications are less effective especially when lots of green material provides an alternative food source for the snails.

*Bait rates*
- The more bait points per square metre the better the kill rate as snails will feed on baits only if they come across them.

*Don’t just bait the paddock: what about fence line and border baiting?*
Snails, often over-summer (aestivate) on fence posts and roadside vegetation. Baiting these areas when snails become active following early autumn rains, will help to control their numbers.

*Better calibration of bait spreaders = better baiting, saving time and money:*
Recent trials completed in South Australia have found that farmers can be spending between $15 and $85 per hectare on baits but may not be applying them effectively. Spreaders that were not calibrated correctly resulted in an uneven distribution of baits. The more even the bait distribution the more likely snails will come into contact with the bait which results in better control.