

# 'Best Bet' IPM strategy

## Establishment pests – Southern region

	Pre-season	Pre-sowing	Emergence	Crop establishment
<b>Earth mites &amp; lucerne flea</b>	<p>Assess risk.</p> <p><b>High risk</b> when:</p> <ul style="list-style-type: none"> <li>history of high mite pressure</li> <li>pasture rotating into crop</li> <li>susceptible crop being planted (e.g. canola, pasture, lucerne)</li> <li>seasonal forecast is for dry or cool, wet conditions that slow crop growth.</li> </ul> <p>If risk is high:</p> <ul style="list-style-type: none"> <li>ensure accurate identification</li> <li>use Timerite (redlegged earth mites only)</li> <li>heavily graze pastures in early-mid spring</li> </ul>	<p>If high risk:</p> <ul style="list-style-type: none"> <li>use an insecticide seed dressing on susceptible crops</li> <li>plan to monitor more frequently until crop establishment</li> <li>use higher sowing rate to compensate for seedling loss</li> <li>consider scheduling a post-emergent insecticide treatment</li> </ul> <p>If low risk:</p> <ul style="list-style-type: none"> <li>avoid insecticide seed dressings (esp. cereal and pulse crops) and plan to monitor until crop establishment</li> </ul>	<p>Monitor susceptible crops through to establishment using direct visual searches. Be aware of edge effects; mites move in from weeds around paddock edges</p> <p><b>If spraying:</b></p> <ul style="list-style-type: none"> <li>ensure accurate identification of species before deciding on chemical</li> <li>consider border sprays (mites) and 'spot' sprays (lucerne flea)</li> <li>spray prior to winter egg production to suppress populations and reduce risk in the following season</li> </ul>	<p>As the crop grows, it becomes less susceptible unless growth is slowed by dry or cool, wet conditions</p>
<b>Slugs</b>	<p>Assess risk.</p> <p><b>High risk</b> when:</p> <ul style="list-style-type: none"> <li>high stubble load</li> <li>annual average rainfall &gt;450 mm</li> <li>history of slug infestations</li> <li>canola being planted</li> <li>summer rainfall</li> <li>heavy clay soils</li> </ul>	<p>If high risk:</p> <ul style="list-style-type: none"> <li>burn stubbles</li> <li>cultivate worst areas</li> <li>remove weeds in paddocks/along fence-lines, at least 8 weeks prior to sowing</li> <li>deploy shelter traps prior to sowing</li> <li>sow early to get crop established prior to cold conditions</li> <li>use soil compaction at sowing (e.g.. press wheels)</li> <li>bait at/after sowing prior to emergence</li> </ul>	<p>Assess risk.</p> <p><b>High risk</b> under cold conditions and slow plant growth</p> <p>Use shelter traps or directly search at night when slugs are active to confirm slugs as the cause of seedling loss If slug pressure is high, successive baiting may be necessary. Monitoring will guide bait use</p>	<p>As the crop grows, it becomes less susceptible unless growth is slowed by cool conditions Re-sowing may be required if plant stands are unsatisfactory</p>

	Pre-season	Pre-sowing	Emergence	Crop establishment
<b>False wireworm &amp; true wireworm</b>	<p>Assess risk. High risk when:</p> <ul style="list-style-type: none"> <li>• history of wireworm pressure</li> <li>• soils high in organic matter</li> <li>• high stubble and summer/autumn litter cover</li> </ul>	<p>Conduct direct visual search for adult beetles over summer and autumn. Directly search (in soil) for beetle larvae 2 weeks prior to sowing</p> <p>If high risk:</p> <ul style="list-style-type: none"> <li>• re-assess crop choice or timing of sowing</li> <li>• consider an insecticide seed dressing (particularly fipronil) or in-furrow treatment</li> <li>• use soil compaction at sowing (e.g. press wheels)</li> <li>• consider higher sowing rate to compensate for seedling loss</li> </ul>	<p>Limited options for control once crop is sown. Consider re-sowing severely affected areas of crop.</p>	<p>Damage to established crops is rare</p>
<b>Scarabs</b>	<p>Assess risk.</p> <p><b>High risk</b> when:</p> <ul style="list-style-type: none"> <li>• sowing crop into pasture, esp. those with a high clover content</li> <li>• previous history of scarab damage to crop in that field.</li> <li>• wetter than average seasons</li> <li>• minimum/No tillage</li> </ul> <p>Under high pressure:</p> <ul style="list-style-type: none"> <li>• spray African black beetle adults in spring</li> <li>• avoid overgrazing pastures</li> </ul>	<p>Dig soil within paddock to determine incidence of scarab larvae.</p> <p>If high risk:</p> <ul style="list-style-type: none"> <li>• cultivate land</li> <li>• avoid sowing grass pastures</li> <li>• use soil compaction at sowing (e.g. press wheels)</li> <li>• consider higher sowing rate to compensate for seedling loss</li> </ul>	<p>Assess risk.</p> <p><b>High risk</b> when dry conditions slow plant growth</p> <p>Limited options for control once crop is sown. Larvae of most species do not emerge from the soil.</p> <p>For black headed pasture cockchafer, spray around heavy dews or light rainfall which will trigger larvae activity</p>	<p>Re-sowing may be an option, but as some species have a 2-year life cycle, larvae can persist through winter into spring. ID will guide this decision.</p>
<b>Others (e.g. earwigs, slaters, millipedes, weevils)</b>	<p>Assess risk.</p> <p><b>High risk</b> when:</p> <ul style="list-style-type: none"> <li>• history of high pest pressure</li> <li>• minimum/No tillage</li> <li>• high stubble load</li> <li>• heavier soils</li> </ul> <p>Monitor in spring using shelter traps, direct searches and/or pitfall traps</p>	<p>If high risk:</p> <ul style="list-style-type: none"> <li>• burn stubbles</li> <li>• cultivate worst areas</li> <li>• use cracked wheat baits</li> <li>• avoid sowing canola</li> </ul>	<p>Monitor susceptible crops through to establishment. Directly search at night to confirm pest species as the cause of seedling loss</p> <p>(Note: large numbers of these pests can be found in paddocks without causing crop damage)</p>	<p>Damage to established crops is rare</p>