

## Pea weevil (*Bruchus pisorum*) in field peas

	<b>Pre-plant/Plant</b>	<b>Budding to Pod maturity</b>
<b>Signs</b>	Pea weevils are now established in all major field pea regions of southern Australia. Although the incidence of pea weevil has declined over the past decade, a failure to manage it well may result in an increase in pea weevil populations.	Pea weevil infestation is initially restricted to the crop edge where the beetles first land when they move from overwintering sites around the field. <ul style="list-style-type: none"> <li>• Orange-yellow, cigar shaped eggs on the surface of developing pods.</li> <li>• Larvae leave the egg and bore directly into developing seeds where they feed until mature</li> <li>• Can reduce seed weight by up to 25%</li> <li>• May reduce germination by up to 75%.</li> <li>• Beetles emerge from seed by chewing a hole in the seed coat. Beetles can emerge from seed in the field, or in storage.</li> <li>• Damaged seed has a characteristic round exit hole and cavity where the larva has fed and developed.</li> </ul>
<b>Monitoring</b>		It is critical to prevent the laying of the PW eggs on the developing pea pods. Monitor every 3-4 days from flowering onwards, using a sweep net once spring temperatures are sufficiently high for PW adults to leave their overwintering sites and move into crops (>18°C). <ul style="list-style-type: none"> <li>• Check crop edges from the start of flowering.</li> <li>• Take 25 sweeps along a 1-5 m band around the edges of the crop – concentrate on areas adjacent to trees or other structures (overwintering sites).</li> <li>• Repeat at 5 or more sites around the field and calculate an average number of beetles</li> <li>• Also sample at distances into the crop (&gt;50 m) if high numbers are found on the edges. Beetles may have moved further if they have been in the crop for some time.</li> </ul>
<b>Beneficials</b>	None known	
<b>Cultural control</b>	<ul style="list-style-type: none"> <li>• Only sow seeds free of pea weevil</li> <li>• Fumigate after harvest if using farmer kept seed</li> <li>• Control volunteer field peas to minimise pea weevil survival</li> <li>• Clean up areas of baled pea stubble, or unharvested portions of field pea paddocks to minimise sources for next season's infestation</li> </ul>	<ul style="list-style-type: none"> <li>• Harvest early to prevent yield loss, minimise emergence, and reduce hibernating populations</li> <li>• Graze fields to reduce spilt seed and to reduce pea weevil numbers hibernating</li> <li>• Field peas grown for hay production should be cut at flowering (before pod development)</li> <li>• Fumigate in sealed silos – kill larvae to reduce seed weight loss and live insects at delivery.</li> <li>• Segregate seed from crop edges from the rest of the crop during harvest to reduce the proportion of infested grain.</li> <li>• Seed for sowing the following year should only be kept from the centre of the paddock.</li> <li>• Clean up spilled seed in paddocks and around storage sites</li> </ul>
<b>Thresholds</b>		<ul style="list-style-type: none"> <li>• Dun peas – 2 beetles/25 sweeps</li> <li>• White peas – 1 beetle/25 sweeps</li> </ul> Border spray if there is average of 2 or more weevils per site.

<b>Pesticides</b>	<ul style="list-style-type: none"> <li>• It is assumed that pea weevil is present in all pea growing regions</li> <li>• A border spray (to 50-60m) is the most effective means of control, especially in large paddocks.</li> <li>• Use sweep net results to determine where spraying is required, especially in irregular shaped paddocks and where trees are present in the middle of paddocks.</li> <li>• Two or more border sprays or whole crop sprays maybe required where above threshold numbers of pea weevils are found following initial spray application.</li> <li>• Spray whole crop if pea weevils are in high numbers in small paddocks or if found near the middle of the crop.</li> <li>• Spray before egg lays commence as insecticides are not effective against eggs.</li> <li>• Egg lay occurs about 2 weeks after beetle arrival in the crop – delay in egg lay should be taken into account when deciding control measures – beetle flights can occur over several weeks. Egg hatch in 14-28 days.</li> <li>• Target insecticide application after first flower and once pea weevil are detected and preferably before most pods develop</li> <li>• Registered rates of synthetic pyrethroids kill adult pea weevils and are effective (at full label rates) at deterring pea weevils from laying eggs for about 18 days after application.</li> <li>• Check crops 14 days after the first spray. Consider a second spray if pea weevils are still present.</li> <li>• Fumigate all purchased seed in gas tight silo for 21 days with phosphine.</li> <li>• Pea weevils that are not controlled in this season’s crop will multiply to become a bigger problem in future years.</li> </ul>
<b>Considerations</b>	<p>Synthetic pyrethroids can flare other pests such as helicoverpa and aphids. SPs also kill beneficials that may keep other pests in check. A border spray will reduce the overall impact of applying a synthetic pyrethroid for PW control.</p> <p>Monitor for other pests at the same time as for pea weevils. Spray pea weevils at threshold but beware of and monitor for other pests, Pea weevil control is an area wide management issue. Local populations can be driven to very low, sub threshold levels with a concerted effort to manage them well in all pea crops.</p>
<b>Communication</b>	<p>Good communication and sharing information with agronomists and other growers may provide initial indications of weevil presence. Area wide coordination of management methods is useful, particularly weed control, seed source, monitoring programs, spray management plans, and marketing options.</p> <p>Industry publications provide up to date information about regional pest issues</p>