

'Best Bet' IPM strategy

Sunflower pests – Northern region

Pre-season and sowing	<p>Monitor prior to sowing for establishment pests: use germinating seed baits and/or soil sampling.</p> <p>Increased risk of establishment pests and seedling loss:</p> <ul style="list-style-type: none"> • history of establishment pests • high levels of retained stubble or weedy fallow • seedling emergence is slowed by cool, wet or dry conditions. <p>Control broadleaf weeds in-field and around crop margins to avoid build-up of cutworm prior to seedling emergence. Controlling weeds (particularly parthenium in central Qld) will minimise the risk of Tobacco Streak Virus (TSV) being transmitted to crops by thrips.</p>
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	Emergence-Vegetative	Budding-Flowering	Grain fill-Maturity
<i>Helicoverpa armigera</i>		<p>High risk:</p> <ul style="list-style-type: none"> • Large larvae move off weeds in the crop and damage buds <p>Larvae feed on the stem below the bud, severing the bud or causing it to be deformed. Natural enemies and cannibalism may result in high levels of death of helicoverpa eggs and larvae.</p>	<p>Large numbers of larvae feeding on grain can result in yield loss.</p> <p>Natural enemies and cannibalism may significantly impact on helicoverpa eggs and larvae.</p> <p>Larvae that pupate after mid-March are likely to go into diapause and remain in the soil until the following spring. Pupae bust crops that may be hosting pupae before moths emerge (prior to August) to prevent carryover of moths and insecticide resistance.</p>
Rutherglen bug	<p>RGB nymphs can move from weed hosts into establishing crops and cause seedling death.</p> <p>High risk:</p> <ul style="list-style-type: none"> • sunflowers following canola infested with RGB • weedy fallow has built up RGB populations. <p>Seed dressing may provide some protection. Under high pressure, seedling loss will still occur.</p> <p>Monitor seedlings every 1-2 weeks from emergence. Include field edges close to weeds.</p>	<p>Influxes of RGB can continue for several weeks from local weed hosts drying off, or immigration from further away. Rapid reinfestation of crops post-spraying may be mistaken for control failure.</p> <ul style="list-style-type: none"> • Budding: Look for RGB on bud stems, and evidence of bud wilt. Infestations are patchy. Adult bugs most evident on warm, sunny days. • Flowering: Aim to prevent adults reproducing. Optimum timing for RGB control is at petal drop. Nymphs developing on grain in downturned heads cannot be controlled effectively. If treatment is required, spray at night when bees are not active. 	<p>RGB feeding damage will affect the viability (germination %) of seed, and oil content and quality.</p>

Loopers	<p>Monitor for larvae and damage to leaves. Generally defoliation is only minor.</p> <p>Natural enemies (particularly parasitoid wasps) can have a significant impact.</p> <p>Bt is effective. Good coverage is essential.</p>	<p>Larvae feed on leaves, but defoliation is generally only minor. Look for larvae under leaves.</p> <p>A threshold of 50% defoliation is proposed from R1-R7. Aim to control larvae before they are large (<20 mm in length) and capable of significant defoliation.</p> <p>Bt is effective. Good coverage is essential.</p>	
Minor pests	<p>Monitor from emergence for stem/leaf damage and evidence of unthrifty growth (soil insects).</p> <p>Thrip damage is generally superficial unless seedling growth is slowed by dry or cool wet weather. Thrips transmit Tobacco Streak Virus (TSV). Seed dressings limit thrip damage and TSV transmission.</p> <p>Greenhouse and silverleaf whitefly have no impact unless in extremely high numbers. Populations in sunflower may be a source of infestation for neighbouring soybean and/or cotton.</p>	<p>Greenhouse and silverleaf whitefly colonise under leaves. No impact on crop growth unless in extremely high numbers. Populations in sunflower may be a source of infestation for neighbouring soybean and/or cotton.</p>	