

# Insect Management

When to monitor for the major insect pests is illustrated in the diagram below.

**Seedling Pests** include false wireworm, true wireworm, wingless cockroaches, field crickets, black field earwig, black scarab beetles, cutworm.

These pests are significant only in central Queensland except for false wireworm larvae which can affect spring plantings in southern Queensland and northern NSW.

**Post Establishment Pests** include Rutherglen bug, heliothis, green vegetable bug, thrips, soybean looper, crickets, leaf hoppers, whitefly.

Only Rutherglen bug and heliothis are considered significant and thorough monitoring is recommended.

## HELIOTHIS

### Importance

A minor but frequent pest.

### Damage

Larvae chew the leaves, buds and the face and back of heads.

### Thresholds

**Budding:** the most vulnerable stage as the whole bud can be eaten. Populations of over 1 medium or 2 small larva per plant warrant control.

**Head (flowering-grain fill):** At this stage the plant is able to tolerate large populations. Damage to the back of the head may predispose the head to rots,



**Heliothis or Budworm**  
(*Heliothis spp.*)

**Larvae feeding on back of a sunflower head.**

but this is rarely an economic reason to control *Heliothis* due to the many other causal insects. In cases of severe infestations seek advice.

### Control

Control normally only warranted before the heads turn down. The chemical to be used and the effectiveness of control will depend on the species of *Heliothis* present. Therefore consult an agronomist for a spray recommendation. Avoid spraying when bees are active, and if present spray late afternoon.

## RUTHERGLEN BUG

### Importance

The most likely and most damaging insect pest.



**Rutherglen bug**  
(*Nysius spp.*)

**Can cause problems at budding and flowering.**

### Damage

The two critical stages are:-

**Budding:** bugs congregate on the upper stem and bud causing poor head development, stunting and even plant death.

**Flowering:** Eggs are laid between individual flowers with nymphs emerging in about 7 days to feed on the young seeds resulting in potential yield, oil content and oil quantity losses.



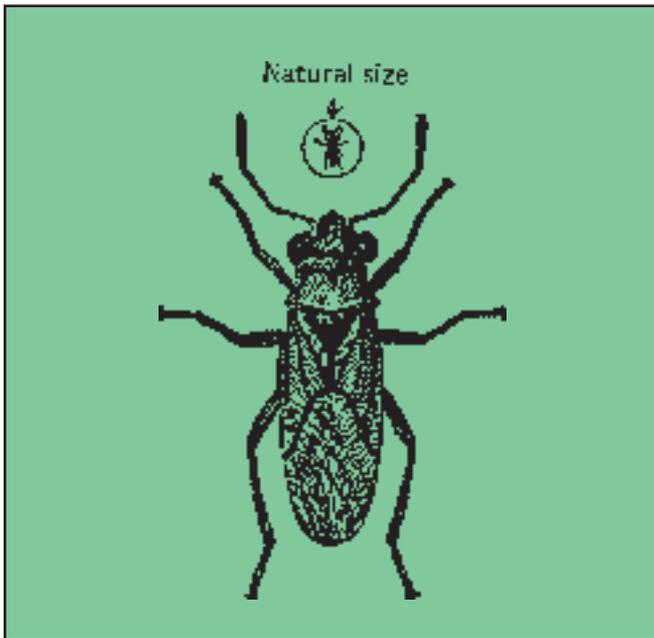
## Threshold

**Budding:** 10 bugs/head August to December: 20 bugs/head January to April. Dryland crops, particularly if stressed, are more vulnerable than irrigated crops.

**Flowering until heads turn down:** Control adults to prevent egg lay. 25 bugs/head up to the end of January: 50 bugs/head February to April warrant spraying. Spray late afternoon when bees are less active.

## Control

If bees are present select chemicals eg endosulphan which are less harmful to bees.



## FALSE WIREWORM

### Importance

Minor with frequent small populations.

### Damage

Larva feed on seeds and the emerging seedling resulting in lost plants and patchy stands.

### Threshold

Detection can be difficult. Either hand sift ten soil samples (each 30 cm x 30 cm) or place ten germinating grain baits throughout the paddock. One larva per sample warrants control measures.

### Control

If control is warranted seed treatments or furrow treatments are available together with the use of press wheels (2-4kg/cm width).



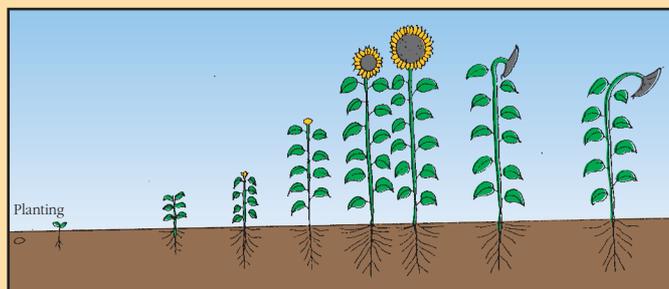
### False Wireworm

(*Gonocephalum* or *Pterohelaeus* spp.)

Larvae feed on underground stems and roots of young seedlings and can result in patchy stands.

## CRITICAL INSPECTION TIMES

emergence    leaves    head    4cm    flowering    heads turn    physiological  
visible    visible    head    start    finish    over    maturity

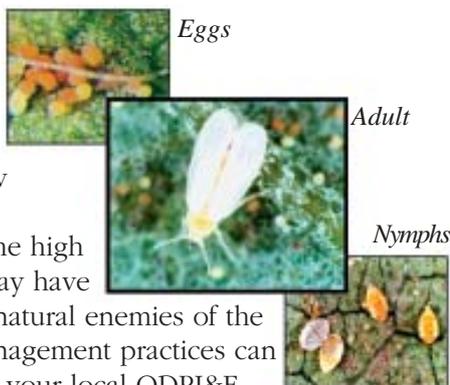


Seedling pests	wireworm	2 per m <sup>2</sup>
Cutworms	visible plant loss	
Heliiothis		2 per plant
Rutherglen bug		10 per plant (budding) 25 per plant (flowering)



## SILVER LEAF WHITEFLY

Large populations of silver leaf whitefly (SLW) attacked some sunflower crops in Central Queensland in the 2001/2002 season, amidst heightened fears that this insect could cause considerable damage to the grains industry. However, infested sunflower crops seemed to have suffered little damage or loss of yield. SLW numbers were very low in sunflower crops in the 2002/2003 season, and appear also to be in low numbers in 2003/2004. Entomologists believe that the high populations of 2001/2002 may have been a rare event, and that natural enemies of the SLW together with good management practices can minimise outbreaks. Consult your local QDPI&F for seasonal forecasts.



SLW infesting sesame

(Photo: **Richard Sequeira**, QDPI&F, Emerald)

### Silverleaf Whitefly Infestation Risk Assessment for Broad-acre Crops

**Registered insecticides and current recommendations for insect control on sunflowers are available from the Australian Pesticides and Veterinary Medicines Authority [www.apvma.gov.au/](http://www.apvma.gov.au/)**

Region	Crop	Risk	Seasonal Risk Level							
			Winter	Oct	Nov	Dec	Jan	Feb	Mar	Apr
CQ	Soybean	VH		X	X	XX	XX	XXX	XXX	XX
	Peanut	M-H						XX	XX	XX
	Navy	M?							XX	XX
	Sunflower	M-L						X	X	
	Mung	L-M		X	X	X	X	X	XX	XX
Q Coast	Soybean	VH	X	X	X	XX	XX	XXX	XXX	XX
	Peanut	M-H	X	X	X	X	X	XX	XX	XX
	Mung	L-M	X	X	X	X	X	XX	XX	XX
Burnett	Soybean	H				X	X	XX	XXX	XX
	Peanut	M			X	X	XX	XX	XX	
	Navy	M?		X	X	X	X	X	XX	XX
	Mung	L-M		X	X	X	X	X	XX	XX
	Sunflower	M-L					XX	XX	X	
SQ/DD	Soybean	M				X	X	XX	XX	X
	Mung	L-M			X	X	X	XX	X	X
	Sunflower	M-L			X	X	XX	XX	X	X
	Navy	M-L?					X	XX	XX	X
NSW-NR	Soybean	H				X	XX	XXX	XXX	XX
	Azuki	H					X	XX	XX	X
	Lucerne	H		X	X	X	X	X	X	X
	Sunfl/Legum	H				X	X	X	X	X

Risk Rating: X - Low, XX - Medium, XXX - High

Source: Richard Sequeira, Senior Entomologist, QDPI&F, Emerald.



# SOIL DWELLING INSECT PESTS

*The Big Black Sunflower Pack*

## CENTRAL QUEENSLAND

Soil dwelling insects such as false wireworm beetles, cockroaches and black field crickets have the potential to significantly reduce plant stands. Activity is likely to be greatest in retained stubble but the benefits of stubble retention far outweigh this. However monitoring for and control of these insects is a relatively simple and inexpensive procedure.

### THE RECOMMENDED ACTION IS:-

1. Check fields for insect activity and bait at planting if the level of activity warrants (refer over page).
2. If baiting is not done at planting continue to closely monitor during emergence as baiting during emergence can still be effective, either by ground or air.

## A MONITORING SYSTEM

*Reference Entomology Branch Queensland D.P.I.*

**Soil-dwelling insect pests are important in the establishment of field crops in Central Queensland. Without control, plant stands and yields in infested fields can be reduced considerably.**

It is important that growers do a pre-plant count to determine if control measures are warranted. This is best done by laying out four mounds over a 5m x 5m grid. Each mound consists of 1/2 teaspoon of Beetle Bait. Five such grids should be spaced out over each 100Ha to be planted.

The mounds are then checked after 1 to 5 nights and the numbers of cockroaches, false wireworms and crickets within 1m of each mound counted.

Until now, the best estimate of an economic threshold was 1 or more insects per mound per night, at any of the five sites.

Recent work developing this aspect further, takes into account the fact that a large cockroach will be more destructive than, say, a small false wireworm. On this basis, a new formula has been derived to give growers a more accurate damage potential.

The equation is:

$$[\text{SWIRE} \times 1 + \text{LWIRE} \times 3.5 + \text{SROACH} \times 5 + \text{LROACH} \times 10 + \text{CRICKET} \times 3] / 20 / \text{NIGHTS}$$

Where	SWIRE	=	total number of small false wireworm beetles.
	LWIRE	=	total number of large false wireworm beetles.
	SROACH	=	total number of cockroaches less than or equal to 2cm long.
	LROACH	=	total number of cockroaches greater than 2cm long.
	CRICKET	=	total number of black field crickets.
	NIGHTS	=	number of nights the mounds have been out.
	20	=	the 5 groups of 4 mounds.

If the result exceeds 6, then control is necessary. Use Beetle Bait at 2.5kg/Ha when planting. It is important that no more than a week elapses between checking mounds and bait application, otherwise the result is invalid.

For the same effort as previously the new formula gives growers a more efficient management tool for reducing losses due to soil pests.



### RECOMMENDED BAITS

1. Beetle Bait® is a pellet impregnated with Chlorpyrifos. The pellet facilitates uniform distribution and with the insecticide impregnated into the pellet the product should be more effective over time.

2. A bait can be prepared on the farm by mixing 100ml Lorsban® 500 EC with 125ml sunflower oil per 2.5kg cracked wheat or cracked sorghum.

### APPLICATION RATE (both products)

False wireworm, cockroaches,	<b>2.5kg/Ha</b>
field crickets	
Black field earwig	<b>5kg/Ha</b>

### METHOD

Broadcast on the soil surface during or after planting ensuring that the baits are not covered.