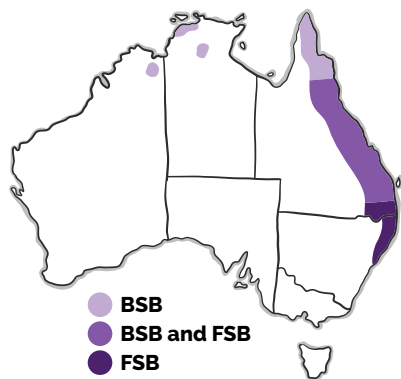


MANAGING FRUIT & BANANA SPOTTING BUGS IN PASSIONFRUIT

NSW DPI | OUR SINCERE THANKS GO TO DR ALANA GOVENDER FOR THE USE OF HER PHOTOGRAPHS.

Fruitspotting bugs (FSB) are native to Australia. FSB are sap sucking insects that feed on the fruit, flowers and very young shoots of fruiting plants. Many horticultural crops and garden plants attract FSB, and FSB readily move from their core native habitat to commercial crops. Growers have recorded crop losses of well over 50% due to FSB damage so they are a serious pest and one which needs careful attention to manage.

Two distinct species affect crops in tropical and subtropical Australia. The full names of the pest species of FSB are (Banana Spotting Bug) *Amblypelta lutescens lutescens* and (Fruit Spotting Bug) *Amblypelta nitida*. For this guide where we discuss these species individually, we refer to them as BSB and FSB for simplicity.



They live in Australian rainforest regions from 30° latitude and north. Most of the passionfruit growing regions in Queensland will have both FSB and BSB populations as you can see from the map.

The implementation of an integrated pest and disease management system is most likely to achieve long-term control of these pests and will need to include cultural controls, monitoring, biological controls, chemical controls and participating in coordinated area wide management.

In this article, we will focus on getting all growers Spotting-Bug-Ready by knowing what to look for and how to monitor the population to know when to take further action.

WHAT ARE THE SIGNS THAT YOU HAVE BSB OR FSB IN YOUR ORCHARD?



wilting shoots are visible after bug feeding – this means you have active BSB



feeding on green fruit shows distinctive markings – you have either BSB or FSB or both

WHAT DO FSB AND BSB LOOK LIKE?

Check out the poster in the centre spread of this magazine for a guide to each instar of both BSB and FSB and learn to tell the difference between them. An instar is a developmental stage of insects, between each moulting of its exoskeleton, until the insect reaches adulthood and sexual maturity.

	ADULT MALE BSB	ADULT FEMALE FSB
		
Days to develop from egg to adult at 25 °C	45 DAYS	50 DAYS

Both BSB and FSB generally complete 3-4 generations in a year – one in spring, one or two in summer and one in autumn. Seasonality controls how many generations each species of FSB will complete in a calendar year. The time it takes for BSB and FSB to develop through its life stages depends on temperature. BSB is a little quicker than FSB to complete a generation. Development time can also vary according to the food the FSB consume.

Most eggs are laid between November and March and during its life, an adult female BSB or FSB can lay over 150 eggs, but only a few each day. Plus, adults can survive the winter and begin a new generation in spring when temperature and humidity increases.

FSB FAST FACTS

- ✓ Native pest
- ✓ Long lived
- ✓ Cause damage at low population density
- ✓ Shy & not easy to see in vine crops
- ✓ All live stages can cause damage but only 5th instar have external wings
- ✓ Move host once other crops become more attractive

HOW CAN YOU MONITOR FOR BSB AND FSB?

Limiting the search for these insects to just your passionfruit vines is not sufficient to inform effective control decisions. They are highly mobile and tend to spend a lot of time in the top halves of trees – making in-crop monitoring difficult from ground level.

- Weekly, or at least fortnightly, monitoring is needed during high-risk fruiting periods.
- Be aware of nearby food sources for FSB and include them in your monitoring.
- Identify and monitor bordering vegetation – especially native bush – that might host these pests (especially at their flowering and fruiting times) and adjacent entry points into the crop.
- Use monitoring hedges or pheromone traps to detect early flights of adult FSB and monitor the nymphs' development.
- Growers have long observed that spotting bugs colonise a certain tree or area in which they breed and feed, then radiate through an orchard as the rest of the crop comes on. Identify these hotspots from observations, and include these in monitoring. Check at least 10 plants/trees in known hotspots.
- Search weekly for fresh damage on at least 20 random plants not covered by other monitoring techniques.
- In passionfruit where significant damage can occur from feeding on tips it can be important to monitor up to 10% of total crop plants.

WHAT ARE THE TOOLS THAT CAN HELP?

A pheromone-based lure is available from OCP for BSB only. When monitoring, you need to know the difference between BSB and Assassin bug nymphs and be aware that the traps won't trap FSB at all.

Detailed instructions for the use of these traps are available from OCP – visit their website at <https://ocp.com.au/product/insect-tech-range> or contact Jason Vella 0448 016 551.

A monitoring hedge is a small group of non-crop fruiting plants maintained to understand pest activity in the vicinity of the orchard. Monitoring hedges can be useful in reducing late season damage that is very difficult to monitor in crop. The right mix of plant species in a monitoring hedge can provide a good indication of spotting bug activity throughout the year. In the north coast of NSW it was found that using three species provided fruit resources to monitor spotting bugs all year round:

- Longan tree (*Dimocarpus longan*) – December to February
- Mock Orange (*Murraya paniculata*) – March to October (*be aware that this is regarded as an environmental weed in New South Wales and Queensland*).
- Gympie Nut (*Macadamia ternifolia*) – August to February

A monitoring hedge is planted as a line or group of plants between an identified spotting bug source and your passionfruit orchard. Pruning to keep the hedge small and limiting the number of plants to 5–9 per hedge reduces time spent monitoring.

The monitoring hedge behaves like a 'patsy' by attracting the spotting bugs and helps to predict when adult bugs are moving into an orchard so control treatments can target when the spotting bugs are about to cause the most damage.

This achieves acceptable control with the most strategic and minimum chemical applications.

Spotting bug nymphs stay within the monitoring hedge once they start feeding. They generally only move to new plants when they first reach adulthood. Bug numbers (particularly 5th instar nymphs) on the hedge usually increase just before adults move into crops. Adult spotting bug flights out of the monitoring hedge, and into commercial crops, occur 10 to 14 days after 30% of the bugs in the trap crop reach the 5th instar nymph stage.

WHAT CHEMICALS ARE PERMITTED FOR USE ON BSB AND FSB IN PASSIONFRUIT?

A search of the APVMA database using the **Infopest** portal (www.infopest.com.au) undertaken on 14th August 2019 identified that there is only one chemical currently registered for use in passionfruit against BSB or FSB:

PER85397 TRANSFORM INSECTICIDE (64101) PLUS OTHER REGISTERED PRODUCTS

Containing: 240 g/L SULFOXAFLOL as their only active constituent

Please note:

- DO NOT apply any product containing SULFOXAFLOL while bees are foraging in the crop to be treated as this product is highly toxic to bees
- Trichlorfon does not have a current label registration or minor use permit for FSB or BSB in Passionfruit

For more information, check out the **Fruitspotting bug 2016 NSW DPI Management guide** and links to other resources on the industry website at: <https://passionfruitaustralia.org.au/home/grow-fruit/resources>

ACTION TRIGGER POINT =

within 10 days of the first observation of $\geq 30\%$ of fifth instar nymphs is the optimal spray treatment time for the first wave of spotting bug in the season.

