

The Best Practice Guide for UK Plum Production

Pests: Plum Fruit Moth

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Overview

Caterpillars of two moth species feed in plum fruits: the plum fruit moth (*Grapholita* (synonym *Cydia*) *funebrana*) and the fruitlet mining tortrix (*Pammene rhediella*). Both species are widely distributed in Britain. Plum fruit moth is the more common pest. Fruitlet mining tortrix occurs sporadically and is less often noted attacking plum.

Caterpillars of the plum fruit moth normally feed on the fruits of blackthorn (sloe) but are also locally common pests of cultivated plum and damson. They attack the fruits from June to September and often cause considerable losses. Caterpillars of the fruitlet mining tortrix feed on hawthorn berries and sometimes also attack fruits of plum and apple in late May, June and July.

Nature of damage

The caterpillars of this species, usually one per infested fruit, feed within the flesh, forming a large cavity that becomes filled with brown frass (excrement). If an occupied fruit is cut open the caterpillar (commonly known as the 'red plum maggot') may be found inside, often lying close to the stone (Fig). Infested fruits tend to ripen prematurely and losses can be severe, particularly in years of light fruit set. Where a crop is picked over for the early market, damaged fruits are more likely to be harvested and infestation of the remaining crop is thereby reduced.

Damage by the plum sawfly (*Hoplocampa flava* (L.)) is similar to that caused by the plum fruit moth but occurs much earlier, when fruitlets are smaller; also the hole in sawfly-infested fruitlets is more conspicuous and is marked by masses of wet, black frass.



Figure 1. PFM larva entry hole in Victoria fruit



Figure 2. Typical PFM larval damage to Victoria fruit



Figure 3. PFM larva (red plum maggot) inside plum fruit flesh. Larvae are whitish when small

Description and life history

The adults of the plum fruit moth are dull slate-grey, with indistinct markings on the fore wings, and have a wing-span of 12-15 mm. They occur from late May or early June to September but are usually most numerous from mid-June to mid-July. The eggs are flat, translucent, more or less circular and about 0.7 mm across; they are usually laid singly on the fruitlets. The eggs hatch in about 10--14 days and the tiny caterpillars burrow into the fruits to feed in the flesh. A superficial and narrow, brownish mine often marks the path taken by the caterpillar. The young caterpillar is white with a dark head, but the body eventually becomes reddish, reaching a length of about 10 mm. The caterpillars feed for several weeks before becoming fully grown. They then escape from the fruits and form silken cocoons in bark crevices or in similar situations where they overwinter. Pupation usually occurs in the following spring, but under favourable conditions some early-developing caterpillars may pupate during the same summer and produce a partial second generation of adults in August and September. The caterpillars of this species typically web several fruits together. In contrast caterpillars of the fruitlet mining totrix cause considerable quantities of gum to exude from the damaged areas of plums and damsons; this gum soon accumulates in the surrounding webbing. The caterpillars, usually one per fruit cluster, burrow into the fruits but, unlike plum fruit moth, little or no frass remains within the flesh

Pheromone traps

Pheromone traps can be used to monitor the activity of male plum fruit moths. These traps give a useful indication of the likely level of infestation in any particular year and may be used to gauge the optimum time for applying an insecticide. They also give warning of any major second-generation attack against which further control measures might be required.

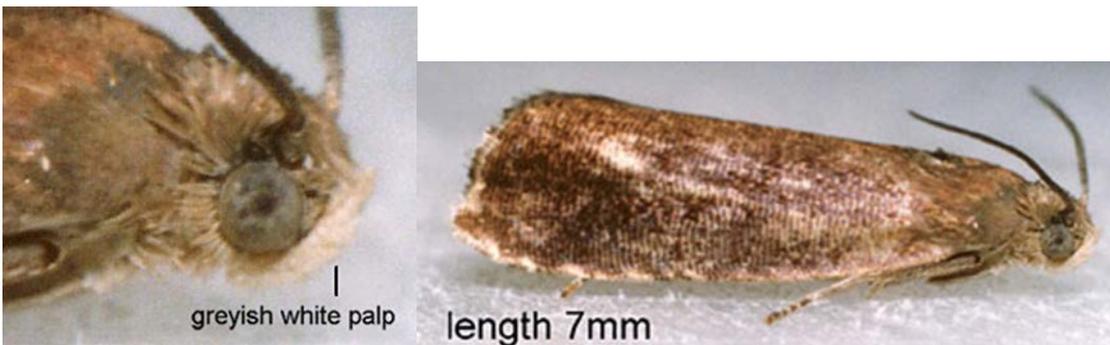
Adults of the plum fruit moth (*Grapholita* (synonym *Cydia*) *funebrana*) can easily be confused with adults of *Grapholita tenebrosana*, especially as that species is also attracted to lures designed for *G. funebrana*, both species sometimes being found together in a trap. They can be separated by the colour of the palps; dull greyish brown in *G. funebrana*, greyish white on *G. tenebrosana*. The genitalia of the males are also distinct.

Plum fruit moth adult (*Grapholita funebrana*)



Figures 4, 5 & 6. *G. funebrana* adults.

Grapholita tenebrosana



Figures 7 & 8. *G. tenebrosana* adults

Genitalia of males



Figures 9 & 10. Genitalia of male *G. funebrana* and *G. tenebrosana*

Control measures

If necessary, a spray of a recommended insecticide should be applied in late June or early July, and again two to three weeks later. With light attacks, a single spray may be adequate, especially if there has been a good fruit set. Care should be taken to observe the minimum permit-ted intervals between spraying and harvesting.

Key facts

- Plum fruit moth is a key pest of plum which attacks the fruit directly causing economic damage at low population densities.
- Blackthorn (sloe) and wild plum are common wild hosts that can be a serious source of infestation for plum orchards
- First generation adults emerge in May to July and fly at dusk on warm evenings. Eggs are laid singly on leaves or the surface of fruits. Larvae hatch after 7-10 days, depending on temperature, and bore into the flesh of the fruit. The entrance holes can be difficult to see and infestation difficult to detect.
- The pest should be monitored using pheromone traps, monitored weekly from petal fall till harvest. The threshold is 30 moths per trap per week.

Disclaimer

The information contained within this Best Practice Guide is correct to the best of the authors' knowledge at the time of compilation but it must be understood that the biological material/systems and the regulatory framework referred to within these guides are subject to change over time. Anyone looking to make use of the information should check it against prevailing local conditions.

All pesticide recommendations and approvals are subject to change over time and the user of this Guide is reminded that it is his/her responsibility to ensure that any chemical intended for use by them is approved for use at the time of the intended application. The user is reminded that they must carefully read and follow the label on each chemical before applying any treatments.

Table 1. Insecticides approved for use on plums which are recommended or may give some control of plum fruit moth											
Active substance	Trade names (examples)	Class	Action, selectivity	Rec. for control of plum fruit moth or oriental fruit moth?	Notes	Hazards			Harvest interval (days)	Max no. sprays	Buffer Zone Width (m)
						Humans	Fish & aquatic life	Bees			
Acetamiprid	Aceta, Acetamex, Gazelle, Vulcan etc	Neonic	Broad spectrum systemic	?		i	t	u	14	2	5
Bacillus thuringiensis var. kurstaki	Lepinox			y		sr	u	u	u	3	u
Deltamethrin	Decis	SP	Broad spectrum contact. Harmful to predatory mites	n	Off label	h, i, e	vt	r	7	2	50
Lambda cyhalothrin	Hallmark, Markate	SP	Broad spectrum contact	n	Off label	h, e	vt	r	7	2	5
Methoxyfenozide	Runner			y		u	t	r	14	2	u
Pyrethrins	Pyrethrum, Spruzit	P	Broad spectrum contact, short persistence	n		i, e	vt	hr	1	4	5
Steinernema carpocapsae	Capsanem, Exhibitline			y		u	u	u	u	u	u

h=harmful, i=irritant, e=risk of damage to eyes, sr=may provoke sensitising reactions, vt=very toxic, r=moderate risk, hr=high risk, u=uncategorised/unclassified/unspecified