The Best Practice Guide for UK Plum Production
Pests: Plum Aphids

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Overview

Aphids are the most important pests of plum. They cause direct damage but also transmit the virus which causes plum pox (Sharka), a serious disease of plum, damson peach and ornamental Prunus. As shoots become heavily infested, extension growth ceases and the debilitating effect of sap extraction by large numbers of aphids can reduce fruit size. In addition, both fruit quality and the photosynthetic efficiency of the leaves can be further reduced by sooty moulds growing on the film of honeydew.

Control of aphids on plum by routine application of aphicides, **is vital.**

Three species of aphid are commonly found on plum, damson and blackthorn:

- Leaf-curling plum aphid (*Brachycaudus helichrysi*)

The most common aphid pest of plum, easily recognized by the tightly curled leaves which occur on infested branches (Fig.). The small, rather rounded, shining green aphids live on the underside of the curled leaves. Eggs are laid in the autumn near the base of fruit buds and hatch about four to six weeks later. Hatching is almost complete by the end of December. The young aphids feed on the base of fruit buds. Nymphs of the second generation are often present before leaves appear in the spring. During this period the aphids are purplish- brown and well camouflaged. They then move to the flower buds and expanding leaves as they open and cause leaf-curl. They change colour to typical shiny yellowish green. Winged forms occur in increasing numbers from May onwards, which migrate to various annual or herbaceous plants such as aster, chrysanthemum and clover. All aphids have left plum by late June or early July. Winged aphids return to plum in September; these produce a generation of wingless egg- laying females.

- Damson-hop aphid (*Phorodon humuli*)

Only causes slight or no leaf curl. Yellowish-green with darker green stripes along the middle and sides of the upper surface. Characteristic protuberances like 'horns' on the head between the antennae. Eggs laid on plum, damson or black- thorn in the autumn do not hatch until April. The first two generations consist only of wingless aphids; some of the third and subsequent generations are winged and migrate to hop, where they are a serious pest. The first migrants usually appear in the second half of May and migration to hops occurs from late May until the latter half of July or early
August. Successive generations of wingless aphids occur on hops from June to September, when winged aphids are produced which return to plum, damson or blackthorn to produce the egg-laying generation. The wingless aphids produced on plum etc. in the spring and early summer are essentially colonizers of actively growing shoot tips. As infested shoots become crowded with aphids, many of the newly formed adults disperse in search of other shoots which are in turn colonized. Large colonies may be formed.

- Mealy plum aphid (Hyalopterus pruni).

Does not cause leaf curl. Large colonies slowly develop on the undersides of leaves. Green with a bluish-grey tinge with a white powdery covering over. Eggs are laid in autumn at the base of buds on plum, damson and blackthorn, but they do not hatch until April. The early generations are wingless but

subsequent generations produce both winged and wingless forms. Winged aphids first appear about mid-June, and migrate to waterside grasses and reeds. This migration continues until August. During September winged aphids, which develop on the summer host plants, return to plum and produce the egg-laying generation. In contrast to the other species, which col- onize the tips of growing shoots, this aphid lives mainly on fully expanded leaves. Infesta- tion is seldom noticed before June, but popula- tions on plum continue to increase until July. The entire lower surface of the leaves can become covered with aphids, but the most obvious effect is severe contamination of fruit and foliage by honeydew and sooty moulds.

Transmission of plum pox

Aphids are the only known insect vectors of plum pox virus, which causes a serious disease of plum and peach in eastern Europe and was first found in England in 1965. Natural transmission by wingless aphids is most likely in situations providing easy access to neighboring plants (including wild plum, bullace, damson, and blackthorn), such as in the nursery or in orchards where the canopies of adjacent trees interlock. This results in a linear or patchy pattern of infected trees. Winged migrants of the damson-hop aphid and the peach-potato aphid, which do not normally breed on plum, will acquire and transmit the virus while probing in search of a suitable host plant. Transmission by winged aphids produces a more random pattern of infected trees.

Adherence to a strict programme of aphid control, coupled with frequent inspection from late April until early August, can practically eliminate the risk of transmission by wingless aphids. This is particularly important on nursery stock. Even if eradication cannot be achieved, populations should be kept at a very low level to minimize the movement of wingless aphids to neighbouring plants. Such measures will also greatly decrease the number of winged aphids produced locally, although others will arise from unsprayed cultivated and wild hosts in the neighbourhood.

Control in orchards and nurseries

- The damson-hop aphid readily develops resistance to insecticides as it has already done to many insecticides used for its control historically including organophosphorus, carbamate and pyrethroid compounds.
- Special care should be taken to select an insecticide which is effective against this species
- It is important to ensure that trees are kept as free from aphids as possible throughout the season
- Leaf-curling plum aphid is a very frequent pest and damage develops rapidly at and after bud burst. A routine spray against this pest at white bud or when the first symptoms are visible just after the blossom period is likely to be justified. Spraying during blossom must be avoided. Spraying should not be delayed more than 7-10 days or severe leaf-curling may develop.
- Frequent crop inspection for the development of damson hop aphid infestations in spring and early summer after blossom is necessary, treatment being applied promptly when infestation is detected
- Mealy plum aphid infestations are often overlooked and, as they can persist until August, may require an additional spray of insecticide in May or June, if not properly controlled in the spring.

Disclaimer

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.

Figure 1: Leaf curling aphid damage

Figure 2: Mealy plum aphid colony

Figure 3: Damson hop aphid colony in plum shoot leaf

Figure 4: Damson hop aphid colony close up

Table 1. Insecticides approved for use on plums which are recommended or may give some control of aphids

Active substance	Trade names (examples)	Class	Action, selectivity	Rec. for control of aphids on plum?	Notes	Hazards			Harvest interval (days)	Max no. sprays	Buffer Zone (m)
						Humans	Fish & aquatic life	Bees			
Acetamiprid	Aceta, Acetamex, Gazelle, Vulcan etc	Neonic	Broad spectrum systemic	y		i	t	u	14	2	5
Carbonic acid diamide/urea	SB Plant Invigorator	Nitrogenous salt and nutrient	Broad spectrum contact	y	Repeated applications may be necessary	u	u	u	u	u	u
Deltamethrin	Decis	SP	Broad spectrum contact	n		h, i, e	vt	r	7	2	50
Dodecylphenol ethoxylate	Agri 50 E	Organic surfactant	Broad spectrum contact	y	Repeated applications may be necessary	u	u	u	0	u	u
Fatty acids	NEU 1170 H			n	Repeated applications may be necessary	i	u	r	4	u	5
Garlic	Natural plant extract			n	Repeated applications may be necessary	u	u	u	u	u	u
Lambda-cyhalothrin	Hallmark, Markate	SP	Broad spectrum contact	n		h, e	vt	r	7	2	5
Maltodextrin	Teminus	Natural plant extract	Broad spectrum contact	y	Repeated applications may be necessary	u	u	u	r	u	5
Orange oil	Orosorb	Organic surfactant	Odourous repellent	n	Repeated applications may be necessary	u	u	u	0	u	u
Pyrethrins	Pyrethrum,	P	Broad	y		i, e	vt	hr	1	4	5

	Spruzit		spectrum contact short persistence								
Spirotetramat	Batavia	keto-enol insecticide	Broad spectrum systemic	y		a	t	r	u	2	u
Tebufenpyrad	Masai	METI acaricide		y (*P. humuli*)	EAMU	h, i, a	vt	hr	21	1	5
Thiacloprid	Calypso	Neonic	Broad spectrum systemic	y		h, a	vt	r	14	2	u

h=harmful, i=irritant, e=risk of damage to eyes, a=may cause allergic reaction, t=toxic, vt=very toxic, r=moderate risk, hr=high risk, u=uncategorised/unclassified/unspecified