

**ORNAMENTALS: *Xylosma congestum* 'shiny xylosma', *Photinia fraseri* 'red robin', *Euonymus japonicus* 'evergreen spindle'**

**Evaluation of Flupyradifurone Against Glassy-Winged Sharpshooter on Ornamentals, 2018**

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*Shiny xylosma* | *Xylosma congestum*

*Photinia* sp. | *Photinia fraseri*

*Euonymus* sp. | *Euonymus japonicus*

Glassy-winged sharpshooter (GWSS) | *Homalodisca vitripennis* (Germar)

This study was conducted to evaluate two rates of flupyradifurone (Altus, Bayer CropSciences) for its efficacy against GWSS on three ornamental hosts that are common in urban regions of California's central valley. Twelve plants of each *Xylosma* sp., *Photinia* sp., and *Euonymus* sp. growing in 1-gal pots were used to compare three treatments: Altus 14 fl oz, Altus 7 fl oz, and a water-only check. Assignments were made such that the data could be evaluated as a completely randomized design of nine treatments by four replications (3 hosts × 3 treatments × 4 replicates). On 23 Aug, a spray bottle was used to treat each shrub using 160 ml

of insecticide solution (to runoff) equivalent to 200 gal of water per acre. The effects of insecticide residues on GWSS mortality were evaluated at weekly intervals by caging adult GWSS onto the treated foliage using 5-gal paint strainer bags. Adult GWSS were collected each week from a local organic citrus orchard; ten mixed-gender adults were placed into a bag (1 cage per tree). On the day of treatment, the spray residues were allowed to dry for approximately 1 h and then one bag per plant containing the adults was placed onto each of the 36 plants. Mortality of GWSS within the bags was recorded 7 d later (1 WAT) by removing the bag and

**Table 1.**

Plant variety	Treatment/formulation	Rate/acre <sup>a</sup>	Mean GWSS mortality (%) <sup>b</sup>					
			1 WAT	2 WAT	3 WAT	4 WAT	5 WAT	6 WAT
Euonymus	Water check	–	18.8c	10.0c	22.5c	5.3c	0.0d	6.3c
Photinia	Water check	–	78.6b	10.0c	17.0c	10.0c	0.0d	9.4c
Xylosma	Water check	–	22.3c	10.0c	0.0c	7.5c	6.7d	5.0c
Euonymus	Altus 14 fl oz	100.0a	100.0a	95.0ab	100.0a	97.5a	91.7ab	100.0a
Photinia	Altus 14 fl oz	100.0a	100.0a	97.5ab	97.5a	94.4a	84.3ab	84.3ab
Xylosma	Altus 14 fl oz	100.0a	100.0a	90.0b	100.0a	84.0ab	68.0c	83.2ab
Euonymus	Altus 7 fl oz	100.0a	100.0a	100.0a	92.5ab	94.7ab	68.9b	68.9b
Photinia	Altus 7 fl oz	100.0a	100.0a	97.5ab	78.1b	69.6bc	82.6b	82.6b
Xylosma	Altus 7 fl oz	100.0a	100.0a	97.5ab	92.5b	72.5b	79.7abc	63.5b
		F	160.25	43.37	67.07	15.41	13.03	9.07
		P	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Means in a column followed by the same letter are not significantly different,  $P \leq 0.05$ , FPLSD after arcsin transformation of the percentage mortality. Original means are shown.

<sup>a</sup>Rate of formulated product per 200 gal of water, sprayed to runoff.

<sup>b</sup>Percentage mortality of GWSS exposed to pesticide residues for 7-d periods from 1 to 6 weeks after treatment (WAT).

**Table 2.**

Treatment/formulation	Rate/acre <sup>a</sup>	Mean GWSS mortality (%) <sup>b</sup>					
		1 WAT	2 WAT	3 WAT	4 WAT	5 WAT	6 WAT
Water check	–	39.9b	10.0b	13.2b	7.6c	2.2b	6.9c
Altus	14 fl oz	100.0a	95.0a	99.2a	93.1a	84.8a	89.3a
Altus	7 fl oz	100.0a	99.2a	96.7a	81.1b	81.3a	71.8b
	<i>F</i>	108.89	173.61	209.68	56.03	38.75	34.76
	<i>P</i>	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Means in a column followed by the same letter are not significantly different,  $P > 0.05$ , FPLSD after arcsin transformation of the percentage mortality. Original means are shown.

<sup>a</sup>Rate of formulated product per 200 gal of water, sprayed to runoff.

<sup>b</sup>Percentage mortality of GWSS exposed to pesticide residues for 7-d periods from 1 to 6 weeks after treatment (WAT).

counting the dead and live adults. A new cage with new adults was placed onto the plant weekly for 6 wk after the initial application. Percentage mortality among treatments was compared by ANOVA with means separated by Fisher's Protected LSD ( $P \leq 0.05$ ) after arcsine transformation.

Both rates of Altus had significant effects on GWSS mortality (Table 1). During the first WAT, both rates of Altus on all three ornamental hosts provided 100% GWSS control, compared with 18.8 to 78.6% mortality in the check. Both rates of Altus continued to provide >90% GWSS mortality in all rate and host combinations 2 and 3 WAT compared with 0 to 22.5% mortality in the check. This trend

continued 4–6 WAT with highly significant GWSS mortality for all rates and host combinations where Altus was applied.

Since there was no host by treatment interaction, numbers were pooled across plant species (Table 2). There were no significant differences between the two Altus rates through 3 WAT. By 4 WAT, the high rate of Altus provided improved mortality compared with the low rate. By 5 WAT, mortality rates of the high rate continued to be numerically, but not statically, higher than the low rate for the remainder of the trial.

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