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ORANGE: *Citrus sinesis* (L.) Osbeck "Parent Washington" navel

Evaluation of Insecticide Residues on the Mortality of Adult Glassy-winged Sharpshooter on Citrus, 2014*

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Orange | *Citrus sinensis*

glassy-winged sharpshooter | *Homalodisca vitripennis*

Thiamethoxam; 3-[(2-chloro-5-thiazolyl)methyl]tetrahydro-5-methyl-N-nitro-4H-1,3,5-oxadiazin-4-imine; Tolfenpyrad; (4-cloro-3-ethyl-1-methyl-*N*-[4-(*p*-tolyloxy)benzyl]pyrazole-5-carboxamide; spinosad; ((2*R*,3a*S*,5a*R*,5b*S*,9*S*,13*S*,14*R*,16a*S*,16b*R*)-2-[(6-deoxy-2,3,4-tri-*O*-methyl-α-L-mannopyranosyl)oxy]-13-[[(2*R*,5*S*,6*R*)-5-(dimethylamino)tetrahydro-6-methyl-2*H*-pyran-2-yl]oxy]-9-ethyl-2,3,3a,5a,5b,6,9,10,11,12,13,14,16a,16b-tetradecahydro-14-methyl-1*H*-as-indaceno[3,2-*d*]oxacyclododecin-7,15-dione; (2*S*,3a*R*,5a*S*,5b*S*,9*S*,13*S*,14*R*,16a*S*,16b*S*)-2-[(6-deoxy-2,3,4-tri-*O*-methyl-α-L-mannopyranosyl)oxy]-13-[[(2*R*,5*S*,6*R*)-5-(dimethylamino)tetrahydro-6-methyl-2*H*-pyran-2-yl]oxy]-9-ethyl-2,3,3a,5a,5b,6,9,10,11,12,13,14,16a,16b-tetradecahydro-4,14-dimethyl-1*H*-as-indaceno[3,2-*d*]oxacyclododecin-7,15-dione; pyrethrins; (1S)-2-methyl-4-oxo-3-(2Z)-2,4-pentadien-1-yl-2-cyclopenten-1-yl (1R,3R)-2,2-dimethyl-3-(2-methyl-1-propen-1-yl) cyclopropanecarboxylate; sulfoxaflor; N-[methyloxido[1-[6-(trifluoromethyl)-3-pyridinyl]ethyl]-λ4-sulfanylidene]cyanamide; petroleum oil

During the fall of 2014, we evaluated the residues of insecticides for their effectiveness against glassy-winged sharpshooter (GWSS). On 24 September, 35 young potted citrus trees were organized in a completely randomized design with 5 replicates of 7 treatments. A squirt bottle was used to spray each tree with 160 ml (runoff) of insecticide solutions that were prepared according to the per acre use rate and water volumes indicated in Table 1. Once residues were dried, a 5-gal paint strainer bag containing 10–12 field-collected adult GWSS was placed over the foliage of each tree, and GWSS mortality in each bag was recorded 7 d later. This process was repeated with new, field-collected GWSS placed in bags on the trees on 1 October, 8 October, and 15 October and removed and evaluated for mortality 7 d later. Data were evaluated by analysis of variance with means separated by Fisher's Protected LSD ($P = 0.05$).

All treatments provided significantly higher mortality than the water check when GWSS were exposed to residues during the first week after application (1 WAT, 1 October) (Table 1). At 2 WAT (October 8) Actara 4 oz and 5.5 oz and Sequoia provided significantly higher mortality than the water check. At 3 WAT (15 October) the 4 oz rate of Actara in 200 gpa of water (the concentration typically used for Asian citrus psyllid) had higher mortality than all other treatments, including the 5.5 oz rate of Actara in 500 gpa of water (the concentration and water volume typically used for Fuller rose beetle).

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Table 1

Treatment/ formulation	Rate amt product/acre	Gpa	Percentage mortality of GWSS after 7 d of exposure			
			1 Oct. (1 WAT)	8 Oct. (2 WAT)	15 Oct. (3 WAT)	21 Oct. (4 WAT)
Water check	—	200	33.3 d	12.0c	15.0b	12.0a
Actara 25WG	4 oz	200	100.0a	96.0a	43.3a	14.0a
Actara 25WG	5.5 oz	500	93.3a	82.0a	26.7b	16.0a
Bexar 15SC	27 fl oz	200	56.7c	28.0c	15.0b	16.0a
Sequoia 2SC	5.75 fl oz	200	88.3ab	48.0b	18.3b	16.0a
Entrust 2SC + spray oil 415	10 fl oz + 1 gal	200	33.3d	18.0c	15.0b	16.0a
PyGanic EC 1.4 II + spray oil 415	64 fl oz + 1 gal	200	71.7bc	26.0c	20.0b	18.0a

Means in a column followed by the same letter are not significantly different ($P > 0.05$, Fisher's Protected LSD).