Arthropod Management Tests, 2015, 1–2
doi: 10.1093/amt/tsv021
(C11)

BLUEBERRY: *Vaccinium corymbosum* L. "Rocio"

Citrus Thrips Control in Southern Highbush Blueberries in California, 2014*

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Subject Editor: John C. Wise

Blueberry | *Vaccinium* spp.

citrus thrips | *Scirtothrips citri*

tolfenpyrad, 4-chloro-3-ethyl-1-methyl-N-[[4-(4-methylphenoxy)phenyl]methyl]-1H-pyrazole-5-carboxamide; spinetoram; (2*R*,3a*R*,5a*R*,5b*S*,9*S*,13*S*,14*R*,16a*S*,16b*R*)-2-[(6-deoxy-3-*O*-ethyl-2,4-di-*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,4,5,5a,5b,6,9,10,11,12,13,14,16a,16b-hexadecahydro-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-3-*O*-ethyl-2,4-di-*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; non-ionic surfactant; polyalkyleneoxide modified polydimethylsiloxane; polyoxypropylene block copolymer; methylated vegetable oils; Cyantraniliprole; 3-bromo-1-(3-chloro-2-pyridinyl)-N-[4-cyano-2-methyl-6-[(methylamino)carbonyl]phenyl]-1H-pyrazole-5-carboxamide; spirotetramat; cis-3-(2,5-dimethylphenyl)-8-methoxy-2-oxo-1-azaspiro(4.5)dec-3-en-4-yl-ethyl carbonate; pyrifluquinazon; 1-acetyl-3,4-dihydro-3-[(3-pyridinylmethyl)amino]-6-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]-2(1H)-quinazolinone; 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; sulfoxaflor; N-[methyloxido[1-[6-(trifluoromethyl)-3-pyridinyl]ethyl]-λ4-sulfanylidene]-cyanamide; flupyradifurone; 4-[[(6-chloro-3-pyridinyl)methyl](2,2-difluoroethyl)amino]-2(5H)-furanone

This trial evaluated the effectiveness of insecticides for citrus thrips control in southern highbush blueberries. The field trial was conducted near Richgrove, Tulare Co., CA, in a 4.8-acre portion of a mature blueberry field planted with the variety "Rocio" with plant spacing of 3 ft by 11 ft. Plot size was four rows by 120-ft long organized into an RCBD with four blocks of eight treatments and two untreated checks. Treatments were applied at 150 gpa on 7 August using a commercial air blast sprayer. Applications were made by spraying in both directions from the drive alleys between rows 1 and 2 and between rows 3 and 4 of each plot due to the inability to drive down the alternate rows that contain the support posts for the hoop house structure over the top of the field. Citrus thrips densities were evaluated in each plot prior to treatment on 5 August and then on 11 August, 14 August, 18 August, and 21 August. On each sample date, we did 10 beat samples per plot. Each beat sample was done by taking the top 4" of a single shoot with new growth and tapping it once onto a 12" by 12" black acrylic tile and then the number of adults and nymphs. All data were collected from the center two rows of the four-row plots. On 21 August, shoot length was evaluated for 10 shoots per plot by measuring the length of new growth since the start of the trial. For each evaluation date, the average number of thrips (nymphs and adults) and shoot length were analyzed by analysis of variance using transformed data (square root $(x + 0.5)$) with means separated by Fisher's protected LSD ($P = 0.05$).

Citrus thrips density prior to treatment was not significantly different compared with the untreated checks (Table 1). Exirel and pyrifluquinazon had significant reductions in citrus thrips densities compared with the untreated checks through 21 August. Bexar

* This research was supported by industry gift(s) of pesticides and/or research funding.

Table 1

Treatment/ forumulation[a]	Rate amt product/acre	Average no. of citrus thrips per beat					New growth (cm)
		5 Aug.	11 Aug.	14 Aug.	18 Aug.	21 Aug.	21 Aug.
Pyrifluquinazon 20SC	6.4 fl oz	45.1a	4.0a	4.9a	7.4a	12.8a	7.9a
Exirel 10SE	20.5 fl oz	42.2a	14.4b	14.1b	18.5b	21.4b	6.0b
Bexar 15SC	27 fl oz	41.9a	12.4b	15.2bc	19.5b	25.7bc	4.0c
Sequoia 2SC	5.75 fl oz	43.3a	13.0b	23.9cd	20.1bc	25.7bc	4.3c
Sivanto 200SL	12 fl oz	36.1a	32.6cd	30.3de	31.0d	30.7d	2.5d
Movento 2SC	8 fl oz	41.7a	31.9cd	28.3de	25.9cd	24.7bc	2.2de
Delegate WG	6 oz	38.6a	26.7c	35.5e	32.4d	31.4d	2.0de
Success 2SC	6 fl oz	41.2a	41.0d	35.1e	29.7d	28.7cd	1.9de
Untreated check 1	—	40.5a	37.8cd	29.8de	30.4d	26.9cd	2.3de
Untreated check 2	—	40.6a	36.7cd	31.8de	28.1d	29.4cd	1.5e

Means in a column followed by the same letter are not significantly different ($P > 0.05$, Fisher's protected LSD) with square root ($x + 0.5$) transformation of the data. Untransformed means are shown.

[a]All treatments included Dyne-Amic at 4 oz/100 gal.

reduced citrus thrips density through 18 August. Sequoia reduced citrus thrips densities on 11 August and 18 August but not 14 August and 21 August. Sivanto, Movento, Delegate, and Success were not significantly different than the untreated checks on any evaluation date. Bexar, Exirel, pyrifluquinazon, Sequoia, and Sivanto had significantly longer new growth than the untreated checks. Delegate, Movento, and Success had new growth that was not significantly different compared with the untreated checks.