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Section C: Small Fruits

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Strawberry: *Fragaria x ananassa* Duch. 'Chandler', 'San Andreas', 'Ruby June', Montery', 'Merced', 'Sensation', and 'Sweet Charlie'

Impact of selected acaricides against twospotted spider mite on 7 strawberry varieties grown in high tunnel, 2023

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Strawberry | *Fragaria* spp.

Twospotted spider mite | *Tetranychus urticae*

The impact of selected acaricides on twospotted spider mite "TSSM" on strawberry was evaluated at the Southwest Purdue Agricultural Research Center in Vincennes, Indiana. Seven strawberry cultivars were planted evenly within 12 blocks on a raised plasticulture system inside a high tunnel. Each block contained 7 strawberry plants of each variety that represented plots within each block. Strawberry plugs (McNitt Growers, Carbondale, IL) were spaced 25 cm apart along a double staggered row and transplanted on 8 September 2023. Blocks were randomly assigned to 1 of 3 spray treatments, resulting in 4 complete replicates of each spray in a split-plot design. The whole plot factor was the spray treatment, and the split-plot factor was the strawberry cultivar. Foliar acaricides Oberon (Bayer Crop Science LP, Research Triangle Park, NC, AI spiromesifen) and Acramite (MacDermid Agricultural Solutions, Inc., Cary NC, AI bifenazate) were applied using a hand-pump backpack sprayer (RL PRO Diaphragm model 914SR, Lowell, MI) at an approximate spray rate of 20 ml per plant calibrated to 600 ml/min spray through a brass adjustable poly flat fan nozzle. The pH of the water dilutant used was 7.8. The treatment application occurred on 25 May 2023.

Pretreatment TSSM densities were collected 1 h before the spray application was made. Three strawberry leaflets were indiscriminately collected from each cultivar within each block. Additional leaflets were collected on 6 and 13 days post-spray application, but leaflets were separated by cultivar in addition to spray block spray to determine differences in TSSM density among cultivars following the spray application. All leaflet collections were scanned under the microscope for TSSM motiles (adults and nymphs). Count data were subjected to a 1- (day 0 post-spray) and 2-factor (6 and 13 days post-spray) generalized linear model with a Poisson residual distribution and means compared and adjusted for multiple comparisons using Tukey honestly significant difference (HSD).

There were no significant differences in naturally occurring TSSM density among spray treatments on 26 May 2023 before sprays were applied (Table 1). Oberon resulted in the lowest TSSM density that was significantly lower than the control at 6 and 13 days post-spray application. There were fewer TSSM in the Acramite treatment compared to the control, but this difference was not statistically significant. Cultivars were statistically similar in TSSM density at 6 and 13 days post-spray application, although TSSM density was considerably higher on "Monterey" on both dates (Table 1). There were no interactions between the spray and cultivar on either sampling date.[1]

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Table 1.

		TSSM motiles per leaflet		
Treatment	Product/3.78 L	DAT: 0[a]	DAT: 6[a]	DAT: 13[a]
Acramite 50WS	9 g	15.20 a	4.86 ab	1.38 ab
Oberon 2SC	0.85 g	12.40 a	4.02 a	0.31 a
Control	–	15.20 a	9.78 b	2.93 b
Pr(> chi-sq)	–	0.11	0.02	0.008
TSSM motiles per leaflet				
Cultivar	**Pooled spray treatments**	**DAT: 0[a]**	**DAT: 6[a]**	**DAT: 13[a]**
Sweet Charlie	–	–	4.75 a	0.83 a
Ruby June	–	–	5.39 a	0.63 a
Sensation	–	–	6.09 a	2.07 a
Merced	–	–	5.59 a	0.96 a
San Andreas	–	–	4.52 a	1.39 a
Chandler	–	–	5.74 a	0.38 a
Monterey	–	–	9.29 a	3.57 a
Pr(> chi-sq)	–	–	0.84	0.11

Means within columns followed by a common letter are not significantly different ($P \leq 0.05$, Tukey HSD).
[a]Log_{10} $(X + 1)$ transformed data used for analysis, non-transformed means shown in the table.