Section V
Pests of Wine Grapes & Small Fruits

EVALUATION OF NEW MODE OF ACARICIDES IN RED RASPBERRY

B. S. Gerdeman, L. K. Tanigoshi and G. H. Spitler
Washington State University
Northwestern Washington Research & Extension Center, Mount Vernon
Mount Vernon, WA 98273
360-848-6152
bgerdeman@wsu.edu, tanigosh@wsu.edu, spitler@wsu.edu

The population of yellow spider mite (YSM), *Eotetranychus carpini borealis* (Ewing), had exceeded our provisional economic threshold of 25 motile mites/leaflet several weeks after harvest of 'Meeker' red raspberry at the WSU NWREC field site. Acaricides field- tested included experimentals Fujimite (Nichino America Inc.) (32 fl oz/ac) and BAS 921021 (13.7 and 27.4 fl oz/ac) compared with standard Acramite (Chemtura Corp.) (1 lb/ac).

Treatments were applied on 6 September, replicated five times and plots measured 30 feet long by 10 feet wide. Applications were applied with a tractor-mounted Rear's hydraulic plot sprayer equipped to deliver 130 gpa at 1.4 mph with 2-D1-45 TeeJet™ nozzles on top of the boom, with both vertical arms each equipped with 7-D1-45 nozzles at 150 psi. The non-ionic silicone surfactant R-56 at 0.25% was used for each spray solution. Motile life stage counts were made by randomly collecting 25 terminal leaflets from primocanes at chest height from both sides of the row, brushing them with a mite brushing machine onto glass plates coated with a thin film of dishing washing detergent. Counts were made under a 10X stereomicroscope (Table 1). Motile stages of the phytoseiids predator, *Neoseiulus fallacis* (Garman) were also sampled from the same glass plate (Table 2).

Table 1. Yellow spider mite control on red raspberry, Mount Vernon, WA, 2011

		Motile YSM/Leaflet				
Treatment	**Rate/acre**	**Ptrm**	**3 DAT**	**6 DAT**	**9 DAT**	**17 DAT**
BAS 921021	13.7 fl oz	37.0a	4.0b	14.0b	0.5b	8.5b
BAS 921021	27.4 fl oz	46.5a	7.5b	8.0b	12.5ab	36.0b
FujiMite 5EC	32 fl oz	44..0a	6.0b	16.0b	5.5b	20.0b
Acramite 50WS	16 oz	34.5a	4.0b	8.5b	1.5b	10.0b
UTC		31.5a	34.5a	60.0a	27.5a	138.0a

Means within columns followed by the same letter are not significantly different (Fisher's Protected LSD, $P<0.05$), PRC ANOVA SAS.

Table 2. Predatory phytoseid, *Neoseiulus fallacis,* on red raspberry, Mount Vernon, WA 2011						
		N. fallacis/Leaflet				
Treatment	**Rate/acre**	**Ptrm**	**3 DAT**	**6 DAT**	**9 DAT**	**17 DAT**
BAS 921021	13.7 fl oz	14.0a	8.5a	9.0a	5.0b	11.0b
BAS 921021	27.4 fl oz	11.5a	6.5a	13.0a	11.5b	13.0b
FujiMite 5EC	32 fl oz	9.5a	5.8a	6.7a	2.8b	18.0b
Acramite 50WS	16 oz	9.5a	6.0a	15.3a	5.5b	3.0b
UTC		11.5a	13.0a	15.5a	25.5a	27.0a
Means within columns followed by the same letter are not significantly different (Fisher's Protected LSD, $P<0.05$), PRC ANOVA SAS.						

Results

Late season pre-counts of motile stages of YSM on 6 September indicated their population levels had exceeded our PNW provisional threshold of 25 motiles per leaflet on red raspberry. YSM population dynamics in the untreated check plots averaged a 4.3-fold increase at 17 DAT (Table 1). September was unseasonably cool and showery earlier in the month.

All acaricides were comparable to each other and FujiMite was significantly different from the untreated check out to 17 DAT (Table 1). Compared with the untreated check, FujiMite provided about 7-fold numerical suppression of the motile life stages of YSM at 17 days posttreatment. Following the 1/3-1/2 drop in predatory mite density at 3 DAT, *N. fallacis* population levels responded numerically in the acaricide treatments compared with the untreated check plots (Table 2). Compared with Acramite, both acaricide chemistries also indicated selectivity or inactivity to this spider mite biological control agent.

Field performance by FujiMite and Acramite indicate their potential as rotational partners in an IRM/IPM spider mite management program in red raspberries in western Washington.