Section 1
Mites and Sap-Sucking Insects

McDANIEL SPIDER MITE: A NEW PEST ON HOPS? EFFECT OF VARIETY ON REPRODUCTION

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McDaniel spider mite, Tetranychus mcdanieli McGregor (MDSM), a common pest of many fruits and vegetables, has hitherto not been reported as a pest of hops. In June of 1985 a serious MDSM infestation was discovered in a Yakima Valley hop yard, cv. Galena. MDSM was also found in an adjacent Cascade yard but at lower population levels. Both yards lie in close proximity to a pear orchard with a history of MDSM infestations. The Galena yard was sprayed with plictran and diazinon on June 26 1985; leaf samples taken June 27 showed an average of 118 mites and 230 eggs with no sign of mortality. On June 28 the yard was sprayed again with omite, resulting in poor control (50% kill). Ninety percent kill was finally achieved with kethane and carzol one week later. Given that MDSM on pears are resistant to plictran, this would explain the plictran failure on hops.

MDSM were collected from the Galena yard and cultured for two generations on five hop varieties: L1, Cascade, Nugget, Olympic and Galena. Mites from these cultures were then tested for their ability to reproduce on those varieties using standard life table techniques. Figure 1 presents the number of offspring from 10 females in 10 days and gives an indication of the relative resistance or susceptibility of the varieties tested to MDSM. Table 1 gives all life table parameters for MDSM on the varieties tested as well as mean values for two spotted spider mite (TSSM), T. urticae Koch on 6 different varieties.

Based on these results, Galena is the preferred hop host of MDSM of the varieties tested. The values of life table parameters obtained for MDSM on Galena are comparable with the mean values for TSSM. Therefore, it appears that in situations where certain pressures exist, i.e., favorable host, close proximity to alternate host, and acaracide resistance, MDSM may pose a new challenge to hop pest control.

Table 1. Tetranychus mcdanieli McGregor life table parameters on 5 hop varieties, and mean values (± s.d.) of life table parameters of the two spotted spider mite (TSSM) T. urticae Koch, on 6 different hop varieties.

	Hop Variety (MDSM)					
	L1	Galena	Olympic	Cascade	Nugget	TSSM
Cohort Generation Time (Tc)	18.33	19.93	19.02	18.18	20.42	18.63 ± 0.91
Net Reproduction Rate (Ro)	69.76	101.2	45.99	70.54	47.18	112.0 ± 25.4
Capacity for Increase (Rc)	0.232	0.232	0.201	0.234	0.189	0.252 ± 0.13
Intrinsic Rate of Natural Increase (Rm)	0.240	0.258	0.218	0.248	0.203	0.290 ± 0.13
Generation Time (T)	17.69	17.92	17.52	17.18	18.94	16.19 ± 0.53
Finite Capacity for Increase (Lambda)	1.271	1.294	1.244	1.281	1.226	1.336 ± 0.17
Number of Offspring from 10 Females in 10 Days	110.2	131.6	88.88	119.2	76.47	182.8 ± 24.3

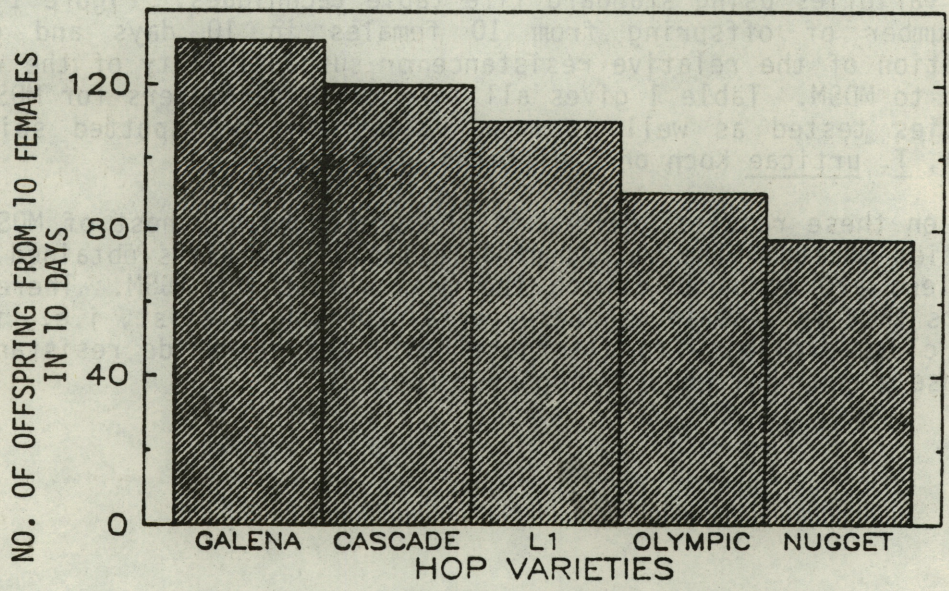

Figure 1. Number of offspring from 10 McDaniel spider mite (MDSM) females in 10 days.