

2012 Silage Corn Spider Mite Trials

In a 2010 and 2012, spider mite trials were conducted in a grower's field north of Tulare. Plots were either 12 rows (2010) or 24 rows (2012) wide and ran the length of the field (1/4 mile). Miticide treatments were applied by a custom applicator (Vieira Custom Spraying) with a ground rig using drop nozzles in 20 gal/acre volume. A non-ionic surfactant was included in all treatments except for Comite. In 2010 the field trial was sprayed on June 23 when plants were 5-6 ft tall and harvested was on August 3; in 2012 the application was May 31 when plants were 4-5 ft in height and harvest occurred on August 14. Each plot was replicated 4 times. Except in 2010 when two rates of Oberon were tested, only one rate of each miticide could be included in the trial. Each ag chemical company decided which rate to use for their product (Table 4). Keep in mind when reviewing the results that some materials are applied at the maximum label rate while others were applied at the middle-of-the-label rate. In both years, 5 rows in the center of each plot were harvested by a D&G custom choppers for yield data.

Table 4. List of treatments for 2010 and 2012 silage corn spider mite trials, Tulare, CA.

Treatment	Rate/A	Year Tested	
UTC	-	2010	2012
Oberon (mid-label)	12.8 fl oz	2010	2012
Oberon (top label)	16 fl oz	2010	No
Onager (mid-label)	16 fl oz	2010	2012
Comite (top-label)	3 pts	2010	2012
Zeal (top-label)	3 oz	No	2012

Spider mite populations were estimated by counting spider mites on 16 (2010) or 12 (2012) leaves per plot. Leaves selected were generally the 4th or 5th leaf up from the base of the plant. Counts for each year are shown in Figures 1 and 2. In both years the untreated control plots had much higher counts than the miticide treatments. In the figures it looks like the spider mite populations in the untreated check decline quickly after they peak in July or August. This apparent drop in population is mostly due to the movement of spider mites to leaves higher in the plant because the lower leaves, which were the ones sampled, had been desiccated by their feeding.

Figure 1. Spider mite counts, based on 16 leaves, 2010 Tulare County Trial, Tulare, CA.

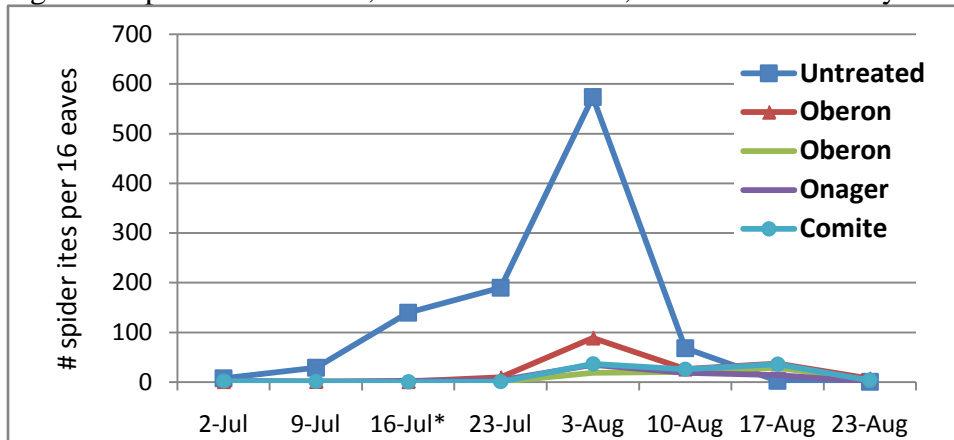


Figure 2. Spider mite counts, based on 12 leaves, 2012 Tulare County Trial, Tulare, CA.

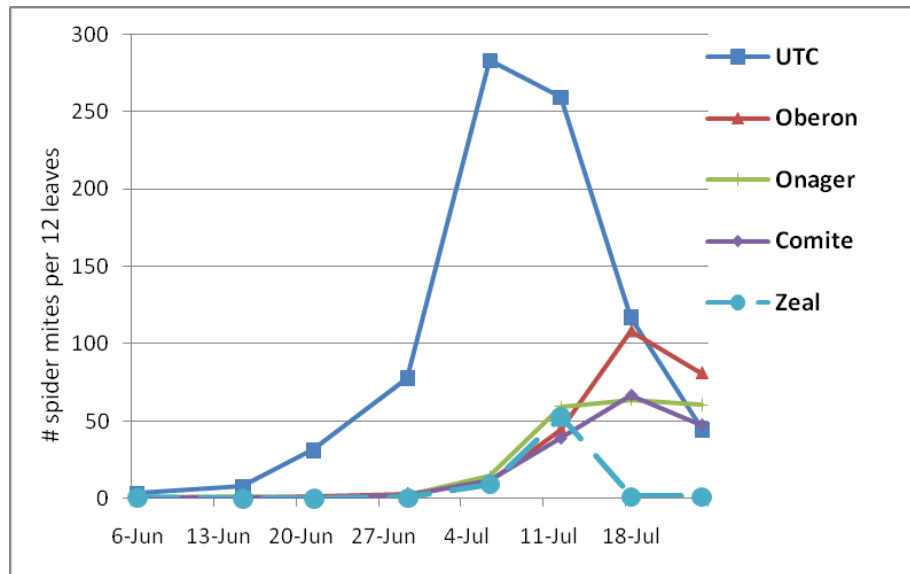


Table 5. Yield data from 2010 and 2012 corn silage spider mite trials, Tulare, CA.

Miticide	Rate applied per acre	(Maximum rate on label)	% Moisture at Harvest		Yield adjusted to 70% Moisture	
			2010	2012	2010	2012
UTC	--	--	67.8	59.65	33.0 b	32.4 d
Oberon 2SC	12.8 fl oz	(16 fl oz)	68.2	63.04	39.4 a	34.3 cd
Oberon 2SC	16 fl oz	(16 fl oz)	67.4	--	38.4 a	--
Onager	16 fl oz	(24 fl oz)	67.9	62.80	39.3 a	36.3 bc
Comite	3 pts	(3 pt)	68.0	64.16	38.9 a	37.7 b
Zeal	3 oz	(3 oz)	--	64.05	--	41.36 a
Probability			>50	0.4092	0.0167	0.0007
LSD (.05)			NS	NS	3.86	3.17
Coefficient of variation (%)			2.95	5.59	6.62	5.61

Yield data for both trials are shown in Table 5. In both years there were no differences in the moisture at harvest and yields are presented after adjustment to 70% moisture. In both years there was a significant reduction in yield when spider mites were uncontrolled. In 2010 all the treatments produced equivalent yields and averaged 4-8 tons per acre more than the untreated control. In 2012, Comite and Zeal, which were applied at maximum label rates, produced higher yields than Oberon and the untreated plots. Onager out-produced the untreated check but did not yield better than Oberon. The Oberon treatment did not out-produce the untreated check. Remember, that both Onager and Oberon were applied at mid-label rates while Comite and Zeal were applied at the maximum rate allowed by the label. Because they weren't all applied at the top label rates it makes it hard to directly compare the efficacy of the miticides.

Controlling spider mites also improved some of the pre-ensilage quality parameters of the corn (Table 6). In 2012, Onager, Comite and Zeal significantly improved the % acid detergent fiber (ADF), % neutral detergent fiber (NDF), and Milk per Ton compared to the control. The results were not as clear cut in the 2010 trial. As a group, the miticide treatments significantly reduced the % ADF even though individually the difference was not significant. The difference in %NDF was not significant.

Table 6. Quality data from 2010 and 2012 silage corn spider mite trials, Tulare, CA.

Miticide	Rate applied per acre	(Maximum rate on label)	ADF (%)		NDF %		Milk per Ton
			2010	2012	2010	2012	2012
UTC	--	--	30.1	32.3 a	47.6	50.7 a	2458 c
Oberon 2SC	12.8 fl oz	(16 fl oz)	28.0	30.3 ab	44.4	47.7 ab	2666 bc
Oberon 2SC	16 fl oz	(16 fl oz)	28.5	--	46.0	--	--
Onager	16 fl oz	(24 fl oz)	27.9	28.0 bc	45.0	43.5 bc	2775 ab
Comite	3 pts	(3 pt)	28.4	27.3 bc	46.0	43.1 bc	2958 ab
Zeal	3 oz	(3 oz)	--	25.8 c	--	40.4 c	3038 a
Probability			0.33	0.01	0.26	0.01	0.01
LSD (.05)			NS	3.25	NS	4.90	292.20
Coefficient of variation (%)			5.59	7.26	3.08	6.98	6.74

Both these trials indicate that spider mites left unchecked can reduce silage corn yields by 4-6 tons per acre or more. Miticides applied just once by ground in both years provided good control. Results of the 2012 trial indicate that there may be benefit to using maximum label rates.

Although this trial did not look at application methods, application by ground provides better coverage than air application and is the preferred way to treat for spider mites.