



www.ipm.ucdavis.edu

Grape—Insect and Spider Mite Monitoring Form

Supplement to UC IPM Pest Management Guidelines: Table Grape

Directions:

1. Start monitoring weekly for leafhopper nymphs one month after budbreak or when nymphs first appear, and for spider mites after first leaves emerge.
2. Randomly select 20 vines in each block of the vineyard, each at least a few vines in from the end of the row.
3. Sample leafhoppers, spider mites, and mealybugs as outlined below.

Leafhoppers	Spider mites	Mealybugs
<p>On each of the 20 vines: <u>First generation nymphs</u></p> <ul style="list-style-type: none"> • Choose one leaf at the 3rd or 4th node up from the basal node. • Count and record the number of nymphs on each leaf. <p><u>Second and third generation nymphs</u></p> <ul style="list-style-type: none"> • Choose young, fully expanded leaves in middle of cane. • Note whether you see grape leafhopper nymphs (G), variegated leafhopper nymphs (V), or both (B). <p><u>All generations</u></p> <ul style="list-style-type: none"> • Check the leaves for red, parasitized eggs (red or exit holes) • Note their presence (+) or absence (-) on each leaf. 	<p>On each of the 20 vines: <u>Early in the season</u></p> <ul style="list-style-type: none"> • Choose one leaf between the 2nd and 4th nodes. • Use a 10X or 14X hand lens and look for mites and mite predators. • Note if mites and mite predators are present (+) or absent (-). <p><u>Later in the season</u></p> <ul style="list-style-type: none"> • Choose the fourth expanded leaf back from the growing tip. • Use a 10X or 14X hand lens and look for mites and mite predators. • Note if mites and mite predators are present (+) or absent (-) on the monitoring form. 	<p>On each of the 20 vines: <u>Early in the season</u></p> <ul style="list-style-type: none"> • Inspect basal leaves for grape, obscure, and longtail mealybugs. • Inspect under the bark of trunks for vine mealybug. <p><u>Later in the season (in table grape)</u></p> <ul style="list-style-type: none"> • Inspect all plant parts for mealybugs. • Record with a check any vine that is infested.
Record your results on the table on page 2 of this form.		

Treatment guidelines for various combinations of Pacific mite injury levels and predator-prey distribution ratios in Thompson Seedless vineyards.				
	Predator-prey distribution ratios			
Pacific mite injury levels (percent of leaves infested)	Rare (<1:30)	Occasional (1:30 to 1:10)	Frequent (1:10 to 1:2)	Numerous (>1:2)
Light (<50%)	Delay treatment to increase predators	Delay treatment	Treatment not likely necessary	Treatment not necessary
Moderate (50 to 65%)	Treat if population is increasing rapidly	May delay treatment to increase predation	Treatment may not be needed if the predator-prey distribution ratio is increasing rapidly	Treatment not needed
Heavy (65 to 75%)	Treat immediately	May delay treatment a few days to take advantage of increasing predation	Treatment may not be needed if predators are becoming numerous	Treatment not needed damage is not increasing
Very heavy (>75%)	Treat immediately	Treat immediately	Treat immediately unless predator-prey distribution ratio increasing very rapidly; carefully evaluate damage	Treatment may not be necessary if population is dropping because of very high (>1:1) predator-prey distribution ratios; carefully evaluate damage

Grower/Vineyard: _____ Date: _____

Comments: _____

Vine (leaf/spur)	Number of leafhopper nymphs/leaf	Leafhopper species: Grape (G), Variegated (V), or Both (B) (circle species)	Parasitized leafhopper eggs (+ or -)	Spider mites (+ or -)	Predatory mites (+ or -)	Mealybug species: Grape (G), Vine (V), or Both (B) (circle species)	Other pests
1		G V B				G V B	
2		G V B				G V B	
3		G V B				G V B	
4		G V B				G V B	
5		G V B				G V B	
6		G V B				G V B	
7		G V B				G V B	
8		G V B				G V B	
9		G V B				G V B	
10		G V B				G V B	
11		G V B				G V B	
12		G V B				G V B	
13		G V B				G V B	
14		G V B				G V B	
15		G V B				G V B	
16		G V B				G V B	
17		G V B				G V B	
18		G V B				G V B	
19		G V B				G V B	
20		G V B				G V B	
	Total:		Total:			Add totals for vines 1 through 20:	
	Average:		Percent:			_____	
						Divide by 20 vines:	

						Multiply by 100:	
						_____%	
Leafhopper treatment thresholds <u>Wine and raisin grapes</u> <ul style="list-style-type: none"> <i>First generation:</i> No treatment necessary if less than 20 nymphs per leaf. If parasitized eggs are present, avoid treatments unless leafhopper numbers are significantly above 20. <i>Second and third generation:</i> Treat if there are 15 or more nymphs per leaf. Coastal vineyards with low parasitization have a threshold of 10. <u>Table grapes</u> <ul style="list-style-type: none"> <i>First generation:</i> Treat if there is an average of 15 or more nymphs per leaf and no parasitization. <i>Second and third generation:</i> Treat if there are 5 to 10 or more nymphs per leaf (varies according to variety—see pest management guideline). 				Mite treatment thresholds: See previous page for treatment guidelines for various combinations of Pacific mite injury levels and predator-prey distribution ratios in Thompson Seedless vineyards. <i>These thresholds were developed for Pacific mite, which is more damaging than Willamette mite.</i>		Grape mealybug treatment thresholds <u>Wine and raisin grapes</u> If an average 20% or more of spurs have grape mealybug, treatment may be warranted. <u>Table grapes</u> <i>For grape mealybug:</i> If an average 4% or more of spurs have grape mealybug, treatment may be warranted. <i>For vine mealybug:</i> If found consult PMG for treatment options.	

