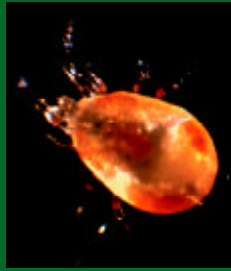


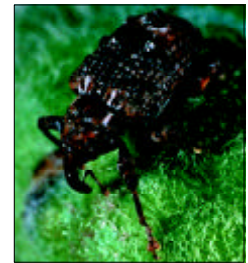
A Pocket Guide for IPM Scouting in Stone Fruits

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Plum curculio -- *Conotrachelus nunuphar* (Herbst)

Plum curculio (PC) disperse from their overwintering sites to adjacent orchards in the spring when maximum temperatures are at least 75°F for 2-3 days or when mean daily temperatures are 55°-60°F for 3-6 days. Although PC may be in the orchard before fruit is present, this is not the appropriate time for control. Spring migration lasts about six weeks. Peak activity and the critical time for control usually occurs 2-3 weeks after shuck split as young fruit develops. Use of a PC degree day model, **for tart cherry only**, can delay insecticide treatment until 375 GDD base 50°F after full bloom. **This GDD model should only be used with an intensive scouting program to ensure PC are properly monitored.**



5 mm The adult beetle is about 5 mm long, dark brown with whitish to gray patches, and has four ridges on its wing covers, two of which are readily visible. Its long, downward-curved snout is about 1/4 to 1/3 its body length.

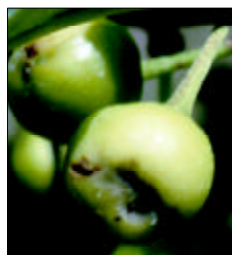


Plum curculio -- continued



7 mm The mature larva is segmented and C-shaped, about 7 mm long, yellowish white with a brown head capsule, and legless. Below, the half-moon scar from PC egg laying.

Eggs laid prior to 375 GDD base 50F will produce larvae that develop and exit the fruit before tart cherry harvest. Oviposition stings after about 375 GDD base 50°F (after bloom) result in larvae in the fruit at harvest. The characteristic half-moon scar on fruit indicates an egg-laying event. PC is capable of causing high levels of injury in a short amount of time.



Monitoring: PC activity can be detected by visually inspecting fruit for signs of feeding or egg laying. Monitor most intensively from bloom through three weeks after shuck fall.



Plum curculio -- continued

Concentrate sampling on trees adjacent to hedgerow and woodlands, especially where damage has occurred. In addition, traps baited with pheromone and fruit volatile lures can be used to detect the presence of PC and to time sprays. Place at least 3 traps along orchard perimeters that are adjacent to PC overwintering habitats, such as woodlands. Traps will begin to capture PC as they move into the orchard and throughout the entire season.

Mineola moth -- *Acrobasis tricolorella* (Grote)

Plums and tart cherries are the preferred hosts of the mineola moth (MM). Young larvae overwinter in hibernacula, emerging in mid- to late



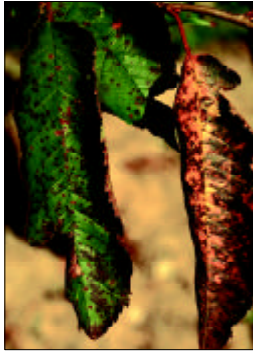
Adults (below, left) are about 9-12.5 mm long, with a white stripe running across the middle of the forewings.

9-12.5 mm



**Cherry leaf spot --
Blumeriella jaapii (Rehm) Arx**

Cherry leaf spot is common on sweet and tart cherry, occasionally on plum. Small, red to purple spots appear on the upper surface of leaves; white to pink spore masses develop during wet weather on the undersides of the spots.



Cherry leaf spot infection on sweet cherry leaves. Note red/purple spots.



Sporulation on the lower surface (left) and spotting, yellowing (right) of tart cherry leaf caused by cherry leaf spot.

Cherry leaf spot -- continued

The spots turn brown and often fall out, causing a shot-hole effect, predominantly on tart cherries. Infected leaves rapidly turn yellow and fall off. Whole trees may become defoliated by mid- to late summer. Sporulating, elliptical lesions may develop on the stems of fruits (in photo below). See the table on the next page for predictions of infection severity based on temperature and wetting period length.

Cherry leaf spot on fruit stems and fruit.



Cherry leaf spot -- continued

Approximate number of hours of wetting period required for conidial infection by the cherry leaf spot fungus at various air temperatures.^a

Average temperature		Wetting period (hr) ^b		
F	C	Light infection	Moderate infection	Heavy infection
81	27.2	28	43	---
80	26.7	21	35	---
79	26.1	18	30	---
78	25.6	16	27	42
77	25.0	14	24	36
76	24.4	12	21	32
75	23.9	11	19	29
74	23.3	9	18	27
73	22.8	8	16	25
72	22.2	7	15	23
71	21.7	7	14	22
70	21.1	6	13	21

Table continues on next page

^a Taken from Jones, A. L., and Sutton, T. B. 1996. *Diseases of Tree Fruits in the East*. North Central Publication NCR-45.
^b Wetting periods are considered to start when rain begins.

Cherry leaf spot -- continued

Table continues (see previous page for more information about this table)

Average temperature		Wetting period (hr) ^b		
F	C	Light infection	Moderate infection	Heavy infection
69	20.6	6	13	20
63-68	17.2-20.0	5	12	19
62	16.7	6	12	19
61	16.1	6	13	20
60	15.6	7	13	20
59	15.0	7	14	21
58	14.4	8	15	22
57	13.9	9	16	23
56	13.3	10	17	24
55	12.8	11	18	25
54	12.2	12	19	27
53	11.7	14	21	29
52	11.1	15	23	31
51	10.6	17	25	33
50	10.0	19	27	35
49	9.4	20	29	38
48	8.9	23	32	42
47	8.3	25	34	46
46	7.8	28	38	51

Beneficials -- predators of soft-bodied insects

Green lacewing adults (10-12 mm long) have large, net-veined wings and gold-colored eyes. They feed on nectar, pollen, and aphid honeydew.



12 mm



Lacewing larvae (about 15 mm long) are alligator-shaped with long sickle-like mandibles. They are active predators.

15 mm



Lacewing eggs are suspended at the tips of long, erect stalks.

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Predators of soft-bodied insects -- *continued*

Adult **lady beetles** are generally oval-shaped and red to orange with varying numbers of black spots (5-7 mm long). Pollen is an important part of the diet of some species.



Lady beetle larvae (at right) have dark, elongated bodies with orange markings and well developed legs (5-6 mm).



5 mm



Lady beetle eggs are barrel-shaped and laid in clusters.

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