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Peach Year-Round IPM Program Annual Checklist

Supplement to UC IPM Pest Management Guidelines: Peach

These practices are recommended for a monitoring-based IPM program that enhances pest control and reduces environmental quality problems related to pesticide use.

Water quality becomes impaired when pesticides and sediments move off-site and into water. Air quality becomes impaired when volatile organic compounds (VOCs) move into the atmosphere. Each time a pesticide application is considered, review the Pesticide Application Checklist at the bottom of this form for information on how to minimize water quality problems.

This program covers the major pests of peach. Details on carrying out each practice and information on additional pests can be found in the guidelines. Track your progress through the year with the annual checklist form. All photo identification pages and examples of monitoring forms can be found online at: <http://www.ipm.ucdavis.edu/PMG/C602/m602yiformsphotos.html>

✓ Done	Dormant/delayed-dormant season activities Mitigate pesticide usage to minimize air and water contamination.**
	Apply fungicide treatments as needed according to PMGs: <ul style="list-style-type: none"> • Peach leaf curl • Shot hole disease
	Manage orchard floor vegetation: <ul style="list-style-type: none"> • Survey weeds and keep records (<i>example form available online</i>). • Manage weeds with pre- or postemergent herbicides or nonchemically in organic orchards. • If ground cover present, manage according to system needs. If frost is indicated, mow before bloom.
	Make an oil treatment for scales and European red and brown mite eggs. <ul style="list-style-type: none"> • If you saw increasing damage from scales last year, take a dormant shoot sample to see if an insect growth regulator should be added to the oil treatment.
	Treat peach twig borer and obliquebanded leafroller with environmentally sound material or delay treatment until bloom.
	Other pests you may see: <ul style="list-style-type: none"> • Fruittree leafroller egg masses • Armillaria root rot • Voles • Pocket gophers • Stink bugs • Tree borers

✓ Done	Bloom season period activities (green tip to petal fall) Mitigate pesticide usage to minimize air and water contamination.**
	Put out pheromone traps for: <ul style="list-style-type: none"> • Oriental fruit moth (February 15 in San Joaquin Valley, February 20 in Sacramento Valley) • Omnivorous leafroller (San Joaquin Valley—February 20) • San Jose scale (February 25—San Joaquin and Sacramento valleys) Check traps and keep records (<i>example form available online</i>).
	If using mating disruption for oriental fruit moth, place dispensers in orchard after first moth is caught but no later than March 5.
	Examine flower clusters and leaves for: <ul style="list-style-type: none"> • Peach twig borer • Fruittree leafroller • Obliquebanded leafroller • Katydid • Western flower thrips
	<ul style="list-style-type: none"> • Monitor for other pests, including stink bugs and plant bugs, as well as known invasive pests (spotted wing drosophila, light brown apple moth).
	When rainy conditions promote disease, time fungicide treatment according to PMGs: <ul style="list-style-type: none"> • Brown rot at 20 to 40% bloom and full bloom. • Jacket rot treatment at full bloom. • Powdery mildew treatment at petal fall. • Scab, if orchard has a history of this disease.
	Monitor for diseases: <ul style="list-style-type: none"> • Rust <ul style="list-style-type: none"> ○ Monitor twig cankers beginning late March. ○ Treat with fungicide if needed according to PMG. • Shot hole <ul style="list-style-type: none"> ○ Fruiting structures in leaf lesions as long as weather is wet. ○ Manage if needed according to PMG.
	Observe the orchard for vertebrates and manage as necessary: <ul style="list-style-type: none"> • Gophers • Ground squirrels
	If orchard floor vegetation present, manage as needed.
	Other pests you may see: <ul style="list-style-type: none"> • Armillaria root rot (oak root fungus) • Bacterial canker • Phytophthora crown and root rot



✓ Done	Fruit development period activities (petal fall to harvest) Mitigate pesticide usage to minimize air and water contamination.**		
	Put up pheromone traps for: <ul style="list-style-type: none"> • Peach twig borer (March 20 in San Joaquin Valley, April 1 in Sacramento Valley) • Obliquebanded leafroller (April 15 in San Joaquin Valley and Sacramento Valley) 		
	Monitor shoot strikes for damage from oriental fruit moth and peach twig borer, especially in mating disruption orchards. <ul style="list-style-type: none"> • Keep records (<i>example form available online</i>). • Manage if needed according to PMGs. 		
	If wet weather persists, continue to monitor for rust: <ul style="list-style-type: none"> • Manage if needed according to PMG. 		
	If orchard has a history of scab: <ul style="list-style-type: none"> • Treat 3 weeks after full bloom. • Treat again 2 weeks later if scab was severe the previous year. 		
	Make fertilizer applications at appropriate intervals.		
	Where ground covers are present, take sweep samples for pests, beginning from early April to early June for: <ul style="list-style-type: none"> • Plant bugs (<i>Lygus</i> and <i>Calocoris</i>). • Katydid. • Stink bugs. Manage if needed according to PMG.		
	Sample fruit damage every other week after color break.		
	Monitor powdery mildew and treat if needed according to PMG.		
	If ground cover present: <ul style="list-style-type: none"> • Survey weeds. • Complete a late-spring weed survey form (<i>example form available online</i>). • Mow, spray, or cultivate ground cover as needed. 		
	Monitor spider mites from May through August: <ul style="list-style-type: none"> • For best evaluation, conduct two 5-minute searches and keep records on a monitoring form (<i>example form available online</i>). • Manage if needed according to PMG. 		
	Select leaf samples in July to analyze for nutrients. Pay particular attention to nitrogen, potassium, and some of the micronutrients such as zinc and boron. <ul style="list-style-type: none"> • Take 60 to 80 mid-shoot leaves from moderately vigorous fruiting shoots. 		
	If rain is predicted during the last 4 weeks before harvest, treat for ripe fruit rot.		
	Other pests you may see: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> • Armillaria root rot • Bacterial canker • Phytophthora root and crown rot • Peach silver mite </td> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> • Black peach aphid • Scab • Verticillium wilt • Tree borers </td> </tr> </table>	<ul style="list-style-type: none"> • Armillaria root rot • Bacterial canker • Phytophthora root and crown rot • Peach silver mite 	<ul style="list-style-type: none"> • Black peach aphid • Scab • Verticillium wilt • Tree borers
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✓ Done	Harvest activities
	Mitigate pesticide usage to minimize air and water contamination.**
	Monitor for ripe fruit rot and treat if rain is predicted.
	Take a harvest sample to determine pest damage.

✓ Done	Postharvest activities
	Mitigate pesticide usage to minimize air and water contamination.**
	In early harvested orchards continue to watch for: <ul style="list-style-type: none"> • Shoot strikes to determine if oriental fruit moth populations are building. • Webspinning spider mites
	Remove fruit remaining in trees to reduce brown rot inoculum and prevent shoot death.
	If surface water runoff is an issue, particularly near waterways, consider the use of cover crops or resident vegetation.



✓ Done	**Pesticide application checklist
	<p>When planning for possible pesticide applications in an IPM program, review and complete this checklist to consider practices that minimize environmental and efficacy problems.</p> <p>Choose a pesticide from the UC IPM Pest Management Guidelines for the target pest considering:</p> <ul style="list-style-type: none"> ▪ Impact on natural enemies and honeybees. ▪ Potential for water quality problems using the UC IPM WaterTox database. (For more information, see http://www.ipm.ucdavis.edu/TOX/simplewatertox.html.) ▪ Impact on aquatic invertebrates (For more information, see <i>Pesticide Choice</i>, UC ANR Publication 8161, http://anrcatalog.ucdavis.edu/pdf/8161.pdf.) ▪ Chemical mode of action (based on efficacy, spectrum of activity, and pesticide resistance). Select an alternative chemical or nonchemical treatment when resistance risk is high. <p>Before an application:</p> <ul style="list-style-type: none"> ▪ Choose application procedures that keep pesticides on target. ▪ Identify and take special care to protect sensitive areas (for example, waterways or riparian areas) surrounding your application site. ▪ Review and follow label for pesticide handling, storage, and disposal guidelines. ▪ Check and follow restricted entry intervals (REI) and preharvest intervals (PHI). <p>After an application:</p> <ul style="list-style-type: none"> ▪ Record application date, product used, rate, and location of application. ▪ Follow up to confirm that treatment was effective. <p>Consider water management practices that reduce pesticide movement off-site. (For more information, see UC ANR Publication 8214, <i>Reducing Runoff from Irrigated Lands: Causes and Management of Runoff from Surface Irrigation in Orchards</i>, http://anrcatalog.ucdavis.edu/pdf/8214.pdf.)</p> <ul style="list-style-type: none"> ▪ Limit irrigation to amount required using soil moisture and evapotranspiration (ET) monitoring. (For more information see UC ANR Publication 8212, <i>Understanding Your Orchards Water Requirements</i>, http://anrcatalog.ucdavis.edu/pdf/8212.pdf.) ▪ Install an irrigation recirculation or storage and reuse system. ▪ Consider the use of cover crops. ▪ Consider vegetative filter strips or ditches. (For more information, see <i>Vegetative Filter Strips</i>, UC ANR Publication 8195, http://anrcatalog.ucdavis.edu/pdf/8195.pdf.) ▪ Install sediment traps. ▪ Use polyacrylamide (PAM) tablets in furrow irrigation or sprinkler irrigation systems to improve soil infiltration and prevent off-site movement of sediments. ▪ Redesign inlets and outlets into tailwater ditches to reduce erosion. (For more information, see UC ANR Publication 8225, <i>Reducing Runoff from Irrigated Lands: Tailwater Return Systems</i>, http://anrcatalog.ucdavis.edu/pdf/8225.pdf.) <p>Consider orchard floor management practices that improve soil structure and reduce erosion. (For more information, see UC ANR Publication 8202, <i>Orchard Floor Management Practices to Reduce Erosion and Protect Water Quality</i>, http://anrcatalog.ucdavis.edu/pdf/8202.pdf.)</p> <p>Consider practices that reduce air quality problems.</p> <ul style="list-style-type: none"> • When possible, choose pesticides that are not in an emulsifiable concentrate (EC) formulation, which release volatile organic compounds (VOCs); this is especially important from May to October. VOCs react with sunlight to form ozone, a major air pollutant.

