

Apricot Year-round IPM Program *(Reviewed 10/14)*

Annual Checklist

These practices are recommended for a monitoring-based IPM program that enhances the use of IPM practices to reduce the risks of pesticides on the environment and human health.

When a pesticide application is considered, review the Pesticide Application Checklist at the bottom of this page for information on how to minimize the risks of pesticide use to water and air quality. Water quality can be impaired when pesticides drift into waterways or when they move off-site. Air quality can be impaired when pesticide applications release volatile organic compounds (VOCs) into the atmosphere.

This year-round IPM program covers the major pests of apricot in California. Details on carrying out each practice, example monitoring forms, and information on additional pests can be found in the Apricot Pest Management Guidelines. Track your progress through the year with this annual checklist form. Color photo identification pages and examples of monitoring forms can be found online at: <http://ipm.ucanr.edu/PMG/C005/m005yiformsphotos.html>.

✓ Done	Dormancy/Delayed-dormancy (leaf fall to bud swell) Mitigate pesticide usage to minimize air and water contamination.**
	Remove and destroy all mummy fruit (using soil cultivation) to reduce the amount of brown rot inoculum in the orchard.
	If shot hole disease is a concern and the dormant season has been rainy, treat according to the Pest Management Guidelines.
	If mites, scales, or aphids have been a problem in the past: <ul style="list-style-type: none"> • Examine several spurs randomly throughout the orchard and map out areas of concern for monitoring at bloom. • Apply an oil spray for European fruit lecanium, brown mite, European red mite, or San Jose scale according to the Pest Management Guidelines.
	Look for pocket gopher mounds in areas where they are active. Manage according to the Pest Management Guidelines.
	Treat peach twig borer with an environmentally sound material or delay treatment until bloom.
	Other pests you may see: <ul style="list-style-type: none"> • Peachtree borer • Fruittree leafroller egg masses • Western tussock moth egg masses and pupal cases (in coastal orchards)
	Survey weeds in October and November after first rains. <ul style="list-style-type: none"> • Complete a late-fall weed survey form. • Manage weeds in and between tree rows with herbicides or mechanically according to the Apricot Pest Management Guidelines.

✓ Done	Bloom (red bud to petal fall) Mitigate pesticide usage to minimize air and water contamination.**
	If peach twig borer was not treated in the dormant season, apply a bloomtime treatment according to the Pest Management Guidelines.
	Install pheromone traps for peach twig borer in the orchard no later than March 15 in the San Joaquin Valley and the Central Coast and April 1 in the Sacramento Valley. <ul style="list-style-type: none"> • Check traps and keep records (<i>example form available online</i>) to determine timing of an in-season treatment.

	<ul style="list-style-type: none"> • In orchards where mating disruptants are to be used, place dispensers in orchard as soon as moths are caught in traps.
	<p>Apply fungicide treatments as needed according to the Pest Management Guidelines for:</p> <ul style="list-style-type: none"> • Brown rot blossom and twig blight • Jacket rot • Powdery mildew • Shot hole disease
	<p>Watch for these invertebrate pests:</p> <ul style="list-style-type: none"> • Cankerworm • Citrus cutworm • Green fruitworm • Fruittree leafroller • Obliquebanded leafroller • Western tussock moth larvae • Katydid (from Madera south—on weed cover or feeding on lower leaves in the crotch of the tree) <p>Manage according to the Pest Management Guidelines.</p>
	<p>Manage orchard floor vegetation.</p> <ul style="list-style-type: none"> • Cut ground cover short. <p>Note weeds escaping treatment and their location in the field. Pay particular attention to weeds escaping control after glyphosate use, which might be an indication of resistance.</p>
	<p>Watch for crowned sparrows and house finches to minimize damage to fruit buds.</p> <ul style="list-style-type: none"> • Manage according to the Pest Management Guidelines.
	<p>Other pests you may see:</p> <ul style="list-style-type: none"> • Peachtree borer • European red mite • Bacterial canker • Mealy plum aphid

✓ Done	Fruit development (petal fall to harvest) Mitigate pesticide usage to minimize air and water contamination.**
	<p>Monitor for peach twig borer.</p> <ul style="list-style-type: none"> • Examine fruit for peach twig borer feeding. • Continue checking pheromone traps and keep records (<i>example form available online</i>).
	<p>Look for mealy plum aphids. Manage as needed according to the Apricot Pest Management Guidelines.</p>
	<p>During early fruit set, set out pheromone traps for obliquebanded leafroller.</p> <ul style="list-style-type: none"> • Check traps and keep records (<i>example form available online</i>) on a degree-day monitoring form.
	<p>In areas with a history of obliquebanded leafroller damage, set out pheromone traps during early fruit set.</p> <ul style="list-style-type: none"> • Check traps and keep records (<i>example form available online</i>).
	<p>Apply fungicide treatment for powdery mildew and brown rot as needed according to the Pest Management Guidelines.</p>

	<p>Assess weeds in late spring to identify perennials and any species that escaped earlier management efforts.</p> <ul style="list-style-type: none"> • Survey weeds and record on a weed survey form (<i>example form available online</i>). Apply postemergence herbicides, mow, or cultivate as required. • Refer to herbicide labels for the appropriate preharvest interval (PHI) 										
	<p>Look for</p> <ul style="list-style-type: none"> • pocket gopher mounds • bird damage to ripening fruit <p>Manage according to the Pest Management Guidelines.</p>										
	<p>Watch for signs of disease:</p> <ul style="list-style-type: none"> • Bacterial canker • Eutypa dieback • Phytophthora root and crown rot • Ripe fruit rot (<i>Monilinia</i> spp.) • Shot hole disease <p>Manage according to the Pest Management Guidelines.</p>										
	<p>Watch for invertebrate pests and manage according to the Pest Management Guidelines:</p> <table border="0"> <tr> <td>• Cankerworms</td> <td>• Katydid (from Madera south)</td> </tr> <tr> <td>• Earwigs</td> <td>• Obliquebanded leafroller</td> </tr> <tr> <td>• European fruit lecanium</td> <td>• Orange tortrix (Central Coast)</td> </tr> <tr> <td>• Fruittree leafroller</td> <td>• Redhumped caterpillar</td> </tr> <tr> <td>• Green fruitworm</td> <td>• Tussock moth larvae</td> </tr> </table>	• Cankerworms	• Katydid (from Madera south)	• Earwigs	• Obliquebanded leafroller	• European fruit lecanium	• Orange tortrix (Central Coast)	• Fruittree leafroller	• Redhumped caterpillar	• Green fruitworm	• Tussock moth larvae
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✓ Done	Harvest
	Mitigate pesticide usage to minimize air and water contamination.**
	<p>Examine harvested fruit to assess the effectiveness of the current year's IPM program and determine the needs of next year's program.</p> <ul style="list-style-type: none"> • Keep records (<i>example form available online</i>).

✓ Done	Postharvest
	Mitigate pesticide usage to minimize air and water contamination.**
	Take leaf samples in July for nutrient analysis to guide your fertility program throughout the year.
	<p>Summer pruning: Prune trees as soon as possible after harvest, in July or August. Complete pruning 6 weeks before the onset of rainfall. Remove and destroy dead wood to reduce inoculum levels for:</p> <ul style="list-style-type: none"> • Eutypa dieback • Brown rot
	If shot hole disease has been a problem in the previous season, treat the orchard before rains begin, right after leaf fall if possible.
	<p>Assess weeds to identify any existing summer species, emerging winter species, and perennial weeds that escaped the previous year's weed control program.</p> <ul style="list-style-type: none"> • Keep records of problem weeds (<i>example form available online</i>). • Manage weeds in tree rows with herbicides, mowing, or cultivation as appropriate.
	<p>Manage vegetation in tree middles:</p> <ul style="list-style-type: none"> • Let resident vegetation grow, consider planting a cover crop, or clean cultivate.
	<p>Other pests you may see:</p> <ul style="list-style-type: none"> • Armillaria root rot (oak root fungus) • Crown gall • Phytophthora root and crown rot • Redhumped caterpillar • Pacific flathead borer • Peachtree borer • Shothole borer

✓ 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> <ul style="list-style-type: none"> • Choose a pesticide from the Pest Management Guidelines for the target pest, considering: <ul style="list-style-type: none"> ▪ Impact on natural enemies and honeybees. [http://ipm.ucanr.edu/PMG/r5301611.html] ▪ Potential for water quality problems using the UC IPM WaterTox database. (For more information, see http://ipm.ucanr.edu/TOX/simplewatertox.html.)

- Impact on aquatic invertebrates. (For more information, see *Pesticide Choice*, UC ANR Publication 8161, <http://anrcatalog.ucanr.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 (For more information, see *Fungicide Efficacy for Apricot Diseases*: <http://ipm.ucanr.edu/PMG/r5902111.html>).
- Before an application:
 - Ensure that spray equipment is properly calibrated to deliver the desired pesticide amount for optimal coverage. [<http://ipm.ucanr.edu/training/incorporating-calibration.html>]
 - Use appropriate spray nozzles and pressure to minimize off-site movement of pesticides.
 - Avoid spraying during these conditions:
 - Wind speed over 10 and under 3 mph
 - Temperature inversions
 - Just prior to rain or irrigation (unless it is an appropriate amount, such as when incorporating a soil-applied pesticide)
 - At tractor speeds over 2 mph
 - 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).
- After an application:
 - Record application date, product used, rate, and location of application.
 - Follow up to confirm that treatment was effective.
- Consider water management practices that reduce pesticide movement off-site.
 - Consult relevant publications:
 - Orchard Floor Management to Reduce Erosion, UC ANR Publication 8202, <http://anrcatalog.ucanr.edu/pdf/8202.pdf>
 - Causes and Management of Runoff from Surface Irrigation in Orchards, UC ANR Publication 8214, <http://anrcatalog.ucanr.edu/pdf/8214.pdf>
 - Protecting Surface Water from Sediment-Associated Pesticides in Furrow Irrigated Crops, UC ANR Publication 8403, <http://anrcatalog.ucanr.edu/pdf/8403.pdf>
 - Consult the Department of Pesticide Regulation Ground Water Protection Program (GWPA) website for pesticide information and mitigation measures. (<http://cdpr.ca.gov/docs/emon/grndwtr/index.htm>)
 - Limit irrigation to amount required using soil moisture and evapotranspiration (ET) monitoring. (<http://anrcatalog.ucanr.edu/pdf/8212.pdf>)
 - Install an irrigation recirculation or storage and reuse system. (http://ipm.ucanr.edu/mitigation/water_reuse.html)
 - Use drip rather than sprinkler or flood irrigation.
 - Consider the use of cover crops.
 - Consider vegetative filter strips or ditches. (For more information, see *Vegetative Filter Strips*, UC ANR Publication 8195, <http://anrcatalog.ucanr.edu/pdf/8195.pdf>.)
 - Install sediment traps.
 - Use polyacrylamide (PAM) tablets in furrow irrigation systems to prevent off-site movement of sediments.
 - Apply polyacrylamides in sprinkler irrigation systems to prevent runoff.
 - Redesign inlets and outlets into tailwater ditches to reduce erosion. (For more information, see UC ANR Publication 8225, *Reducing Runoff from Irrigated Lands: Tailwater Return Systems.*, (<http://anrcatalog.ucanr.edu/pdf/8225.pdf>.)
- Consider practices that reduce air quality problems.

	<ul style="list-style-type: none">▪ When possible, reduce volatile organic compound (VOC) emissions by decreasing the amount of pesticide applied, choosing low-emission management methods, and avoiding emulsifiable concentrate (EC) formulations. (http://ipm.ucanr.edu/mitigation/reducing_voc.html)▪ Use the Department of Pesticide Regulation calculators to determine VOC emission rates from fumigant (http://cdpr.ca.gov/docs/emon/vocs/vocproj/calculate.htm) and nonfumigant (http://cdpr.ca.gov/docs/emon/vocs/vocproj/calculate.htm) pesticides.
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