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Walnut Year-Round IPM Program Annual Checklist

Supplement to UC IPM Pest Management Guidelines: Walnut

These practices are recommended for a monitoring-based IPM program that reduces water and air quality problems related to pesticide use. Track your progress through the year using this form.

Water quality becomes impaired when pesticides move off-site and into water. Air quality becomes impaired when volatile organic compounds 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 air and water quality problems. This program covers the major pests of Walnuts. Details on carrying out each practice, information on additional pests, and additional copies of this form are available from the UC IPM Pest Management Guidelines: Walnut at <http://www.ipm.ucdavis.edu/PMG>.

✓ Done	Dormant activities
	Special issues of concern related to environmental quality: none identified.
	Manage orchard floor vegetation: <ul style="list-style-type: none">• Continue postharvest weed assessment in late fall to identify those that were not controlled by fall treatment.• Keep records (example form available online).
	Assess mummy nut levels on the ground and in trees for navel orangeworm management.
	Look for scale pests and mites and evidence of parasitism. <ul style="list-style-type: none">• Examine scaffolds, limbs, branches, spurs and prunings, for scale pests and European red mite eggs.• Note areas of concern for possible treatment**.
	Other pests you may see: <ul style="list-style-type: none">• Italian pear scale• Fruittree leafroller egg masses

✓ Done	Delayed-dormant activities Special issues of concern related to environmental quality: none identified.
	If a significant number of mummy nuts are still on trees or on the ground at the end of February: <ul style="list-style-type: none"> • Remove mummy nuts from trees before mid-March. • Flail mow to destroy mummy nuts and remove huller waste materials.
	Mow ground cover before bloom.
	If dormant scale and mite monitoring indicated need, treat according to the PMG: <ul style="list-style-type: none"> • European fruit lecanium and frosted scale • Walnut scale
	Look for the following pests if they have been a problem in the past: <ul style="list-style-type: none"> • European red mite • San Jose scale • Italian pear scale Treat** if needed according to PMGs.
	Manage squirrels before April, if needed.

✓ Done	Budbreak through bloom activities Special issues of concern related to environmental quality: pesticide runoff.
	If conditions favor walnut blight, treat** according to PMG.
	Place codling moth pheromone traps in mid-March to determine first moth emergence. <ul style="list-style-type: none"> • Check traps twice weekly until biofix, and weekly thereafter. • Use degree-days for monitoring pest development. • Keep records (example form available online).
	If using mating disruptants for codling moth, place them in orchards using female biofix according to the PMG.
	Initiate fertilizer application and establish a nitrogen budget.
	Look for crown gall and manage if needed according to PMG.
	Keep records of other pests you may see: <ul style="list-style-type: none"> • Phytophthora • Armillaria (oak root fungus) • Gophers



✓ Done	In-season activities (nut development) Special issues of concern related to environmental quality: pesticide runoff.
	If conditions favor for walnut blight development: <ul style="list-style-type: none"> • Treat** according to PMG if rainy conditions continue beyond bloom. • Or use the Xanthocast model to determine the need for and timing of blight sprays.
	Maintain codling moth management program: <ul style="list-style-type: none"> • Check traps and keep records (example form available online). • If using sprayable mating disruptants, reapply according to PMG instructions. • Check traps and canopy nut counts to determine the need for supplemental sprays. • If not using mating disruptants treat** only if necessary according to PMG.
	If dormant monitoring indicated infestations of walnut scale, monitor for crawlers. <ul style="list-style-type: none"> • Manage if needed according to PMG.
	Begin examining leaves for aphids. <ul style="list-style-type: none"> • Look for aphids, aphid mummies, and natural enemies. • Manage if needed according to PMG.
	Take leaf samples in July for nutrition analysis.
	Start monitoring for webspinning mites when the weather warms up, once per week through August. <ul style="list-style-type: none"> • Keep records (example form available online). • Manage if needed according to PMG.
	Assess weeds in late spring and identify those not controlled by fall/winter treatment. <ul style="list-style-type: none"> • Keep records (example form available online).
	Manage weeds in rows with preemergent or postemergent herbicides or nonchemically in organic orchards. Manage weeds in row middles.
	Monitor for walnut husk fly. <ul style="list-style-type: none"> • Set out supercharged walnut husk fly traps by June 1 in coastal areas and by June 15 in inland areas and check traps at least twice a week. • If using GF120 bait sprays, apply** at first fly catch and use only in orchards with low populations. • Keep records (example form available online). If using insecticide and bait sprays: <ul style="list-style-type: none"> • Treat** according to PMG when there is a sudden increase in trap catches, or when the first egg is detected. • Don't treat within 3 weeks of harvest.
	Consider using a plant growth regulator to hasten husk split for early harvest if navel orangeworm is a problem.
	Bait ground squirrels, if needed, when vegetation begins to dry.
	Other pests you may see: <ul style="list-style-type: none"> • Phytophthora root and crown rot • Crown gall • Redhumped caterpillar • Fall webworm



✓ Done	Harvest activities
	Special issues of concern related to environmental quality: none.
	Harvest nuts promptly to reduce potential for navel orangeworm damage and to preserve kernel quality.
	Sample nuts at harvest to evaluate your pest management program. <ul style="list-style-type: none"> • Distinguish codling moth from navel orangeworm damage. Evaluate this season's management program and plan for the next season's management.

✓ Done	Postharvest activities
	Special issues of concern related to environmental quality: herbicide runoff.
	Manage orchard floor vegetation. <ul style="list-style-type: none"> • Assess weeds and keep records (example form available online). • Consider weed management practices such as resident vegetation growth or cover cropping.



✓ 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 UC IPM Pest Management Guidelines for the target pest considering: <ul style="list-style-type: none"> ▪ Impact on natural enemies. ▪ 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 if pesticide resistance is an issue. ✓ Select an alternative chemical or nonchemical treatment when risk is high. <ul style="list-style-type: none"> ▪ Choose sprayers and 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). ▪ After an application is made, 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. (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.) <ul style="list-style-type: none"> ▪ Install an irrigation recirculation or storage and reuse system. ▪ Use drip rather than sprinkler or flood irrigation. ▪ Limit irrigation to amount required using soil moisture monitoring and evapotranspiration (ET). ▪ 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.) ▪ Redesign inlets into tailwater ditches to reduce erosion. ✓ Consider management practices that reduce air quality problems. <ul style="list-style-type: none"> ▪ When possible, choose pesticides that are not in emulsifiable concentrate (EC) form which release volatile organic compounds (VOCs). VOCs react with sunlight to form ozone, a major air pollutant.

