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Lettuce Year-Round IPM Program Annual Checklist

Supplement to UC IPM Pest Management Guidelines

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

This program covers the major pests of lettuce in the Central Valley, Central Coast, and desert areas (Imperial and Coachella Valleys). Details on carrying out each practice, example monitoring forms, and information on additional pests can be found in the guidelines. Track your progress through the year with the annual checklist form. Examples of monitoring forms and color photo identification sheets can be found online at: <http://www.ipm.ucdavis.edu/PMG/C441/m441yiformsphotos.html>

✓ Done	Preplant <i>Mitigate pesticide usage to minimize air and water contamination**.</i>
	Select your field. <ul style="list-style-type: none"> ▪ Consider soil type, cropping and pest history, plantback restrictions from previous crop, and rotational plan for the field. ▪ Take a soil sample for nutrient, salinity, and pH analysis to determine field suitability and soil nutrient management. ▪ Sample soil for nematodes (Central Valley and desert) and <i>Verticillium</i> (coast).
	Survey weeds <ul style="list-style-type: none"> ▪ Keep records (<i>example form available online</i>), noting the presence of problematic weeds. Manage if needed according to the PMG.
	Clean equipment and tractors to prevent the spread of soilborne diseases before they enter the field.
	Prepare the field (in all growing areas): <ul style="list-style-type: none"> ▪ Apply fertilizer based on soil test results. ▪ Determine bed size and list fall beds. ▪ Choose an irrigation system. ▪ Choose planting configuration (number of seedlines per bed). In Central Valley and desert areas only: <ul style="list-style-type: none"> ▪ In blocks that will be planted late, plant cover crops appropriate to the planting schedule. ▪ Consider the use of solarization in June, July, or August for control of weeds, pathogens, and nematodes.
	Preirrigate and cultivate to germinate and destroy the initial flush of weed seedlings.
	In coastal organic fields, plant insectary plantings to increase populations of aphid natural enemies.
	Seed selection and treatment: <ul style="list-style-type: none"> ▪ Select an appropriate cultivar based on time of year and disease resistance. ▪ Consider using primed seed in areas where ambient temperatures exceed 90°F at planting.

✓ Done	Planting to Rosette <i>Mitigate pesticide usage to minimize air and water contamination**.</i>
	Select and apply herbicides at planting based on weed survey taken before planting.
	Plant seeds or transplant lettuce into uniform beds to the proper depth with a precision planting system.
	Check for stand uniformity and wilted plants, and inspect plants for pests and their damage; manage if needed according to PMG.
	Manage vertebrate pest problems if needed.
	Treat fields with a history of severe lettuce drop.
	Cultivate as close to seedline as possible.
	Hand thin seedlings and hand weed.
	Install drip tape (Central Coast).
	Apply fertilizers as needed based on results of a presidedress soil nitrogen quick test (PSNT).

✓ Done	Rosette to Heading <i>Mitigate pesticide usage to minimize air and water contamination**.</i>
	Cultivate the field for a second time.
	Apply nitrogen if needed based on results of presidedress soil quick test (PSNT).
	Hand weed and remove weeds from field.
	Monitor for pests or pest damage, and manage if needed according to PMG.

✓ Done	Heading to Harvest <i>Mitigate pesticide usage to minimize air and water contamination**.</i>
	Monitor for pests or pest damage, and manage if needed according to PMG.
	Manage vertebrate pest problems, and take appropriate steps according to industry guidelines.
	Test soil for nitrogen, and apply as needed based on test results.
	Clean harvest equipment and tractors to prevent spread of disease before they enter the field.

✓ Done	Harvest and Postharvest <i>Mitigate pesticide usage to minimize air and water contamination**.</i>
	Note the presence and level of soilborne disease at harvest.
	Remove drip tape (Central Coast).
	Prepare for fallow season and till soil (Central Coast).
	Consider planting a cover crop to protect the soil during the winter fallow period (Central Coast).
	Disc under crop residue to control leafminers.
	Plan crop rotation.



✓ 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 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.) and 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. ✓ Before an application: <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: <ul style="list-style-type: none"> ▪ 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 tail water return system. (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.) ▪ Use drip rather than sprinkler or flood irrigation. ▪ 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 or sprinkler irrigation systems to increase infiltration and reduce runoff. ▪ Redesign inlets and outlets into tailwater ditches to reduce erosion. ▪ Limit irrigation to amount required using soil moisture monitoring and evapotranspiration (ET). ✓ 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.

