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Tomato (Processing)

Year-Round IPM Program

(Reviewed 1/07, updated 1/07)

These practices are recommended for a monitoring-based IPM program that reduces water quality problems related to pesticide use. Links take you to information on how to monitor, forms to use, and management practices. Track your progress through the year with the annual checklist form.

Water quality becomes impaired when pesticides move off-site and into water. Each time a pesticide application is considered, review the Pesticide Application Checklist at the bottom of this page for information on how to minimize water quality problems.

Note: This program covers the major pests of processing tomatoes in the Sacramento and San Joaquin valleys; information on additional pests, including pests of fresh market tomatoes, is included in the Tomato Pest Management Guideline.

| Print annual IPM checklist (165 KB, PDF) | Tomato Pest Management Guidelines | Forms and photo ID pages |

- Preplanting
- Planting to prebloom
- Bloom to early fruit set
- Late fruit set
- First red fruit (preharvest)
- Harvest and postharvest
- Pesticide application checklist

Preplanting activities (fall bedwork to preplanting)

Special issues of concern related to water quality: Fertilizer application, herbicide application, drift, and runoff due to rain or irrigation.

What should you be doing during this time?
Consider a cover crop (rather than fallowing or vegetative filter strips) to: • Minimize rainfall runoff • Improve infiltration • Reduce erosion Survey and manage weeds in previous crop.
Consider a subsurface drip irrigation system or other modifications of your irrigation system to reduce run off and risk of diseases and weeds.
Select your field, considering cropping and pest history, and surrounding crops. Check previous crop for signs of disease or soil problems that may affect tomatoes.
If nematode galled roots were found in the previous season, take soil and root samples for nematodes.
Take a preplant soil sample for nutrient and salinity analysis.
Check field and surrounding land for vole activity in late fall or winter.
Consider crop rotation for reducing pathogen, nematode and weed problems.
Consider a preplant irrigation in the Southern San Joaquin Valley.
Evaluate fallow or preplant herbicide needs.
Select a tomato variety, considering: • Dodder • Prevalent pathogen problems • Nematode problems
Use pathogen-free transplants.
Prepare the field before planting.
If weather has been cool and wet and bacterial speck has been common in the field, consider delaying planting.

Planting to prebloom

Special issues of concern related to water quality: Fertilizer application, herbicide sprays, insecticide application, fungicide application, drift, and runoff due to irrigation or rain.

What should you be doing during this time?
Take caution not to move pests from the greenhouse to the field. • Before planting, visually inspect plants for diseases and insects. • Destroy plants with late blight, gray mold, silverleaf whitefly or pinworm.
Apply fertilizer at planting.
Consider an irrigation if your location has not had an adequate spring rain.
Look for insects, seedling diseases, and blank spots from seedling emergence to 2–3 true leaves: • Cutworms • Darkling beetle • Flea beetles • Damping off • Aphids • Garden symphylans • Wireworms
Survey and manage weeds: • Cultivate weeds along plant line. • Consider hand weeding. • Complete a weed survey form (111 KB, PDF). Consider herbicide treatment** based on survey information.
Consider sidedressing the crop with nitrogen at prebloom.
Consider treatments** for: • Bacterial speck—if it has been common in the field and the weather has been cool and wet. • Bacterial spot—if the weather has been mild and wet.
Look for bacterial canker and manage according to the PMG, especially under cool and wet conditions or sprinkler-irrigated fields.
Other pests you may see: • Curly top • Tomato spotted wilt • Rodents, including voles.

Bloom to early fruit set (up to 1 inch fruit)

Special issues of concern related to water quality: Fertilizer application, fungicide application, insecticide application, drift, runoff due to irrigation.

What should you be doing during this time?
Start monitoring for consperse stink bugs by placing stinkbug pheromone traps in the field at flowering.
Take petiole and leaf tissue samples for nutrient analysis and apply nutrients as necessary.
Irrigate as required for plant growth.
Look for diseases such as: • Fusarium wilt • Tomato spotted wilt • Verticillium wilt • Corky root • Curly top Clean equipment to reduce transfer of some diseases to non-infected fields. Keep records for next year's management practices.
Monitor weekly for signs and symptoms of powdery mildew.
Other pests or damage you may see: • Green peach aphid and other early season aphids • Loopers • Hornworms • Potato aphid • Tomato pinworm • Tomato bug • Viruses

- Armyworms
- Whiteflies
- Lygus
- Thrips

Late fruit set (1 inch fruit to first red fruit)

Special issues of concern related to water quality: Insecticide application, fungicide application, drift, runoff due to irrigation.

What should you be doing during this time?
Use irrigation practices that will enhance fruit yield and quality.
Take leaf samples for: • Tomato fruitworm • Potato aphid Keep records on a monitoring form (120 KB, PDF).
Sample for stink bugs by shaking vines. Treatment is not usually required for juice or paste, otherwise treat** if needed according to PMG.
When plants are 1 inch or more in diameter, sample fruit for: • Beet armyworm • Western yellowstriped armyworm Keep records on a monitoring form (71 KB, PDF) and treat** if needed according to PMG.
Continue monitoring for bronzing due to russet mite.
Watch for diseases: • Bacterial canker • Late blight • Buckeye rot Treat** if needed according to the PMG.
Consider management for blackmold according to PMG.
Look for signs and symptoms of powdery mildew.
Other pests or damage you may see: • Green peach aphid and other early season aphids • Armyworms • Whiteflies • Loopers • Hornworms • Potato aphid • Lygus • Thrips • Tomato pinworm • Tomato bug • Viruses

First red fruit (preharvest)

Special issues of concern related to water quality: Insecticide application, fungicide application, drift, runoff due to irrigation.

What should you be doing during this time?
Control irrigation to maintain fruit quality.
Consider management options for blackmold if a late harvest is planned.
Take leaf samples for: • Tomato fruitworm • Potato aphid Keep records on a monitoring form (100 KB, PDF).
Monitor fruit for armyworm damage and distinguish from fruitworm and cutworm damage. • Keep records on a monitoring form (71 KB, PDF) for armyworm.
Survey for weeds just before harvest for next year's planning. • Keep records on a survey form (111 KB, PDF).
Other pests or damage you may see: • Whiteflies • Cutworms • Flea beetles

• Leafminers • Tomato psyllid • Lygus • Hornworms • Tomato pinworm
Harvest promptly to reduce disease problems such as blackmold.

Harvest and postharvest

Special issues of concern related to water quality: None.

What should you be doing during this time?
Identify pest damage in harvested fruit.
Plan fallow season, cover crop, or overwintering crop management to reduce runoff and erosion.
Plan for next year.

**Pesticide application checklist

When planning for possible pesticide applications in an IPM program, review and complete this checklist to consider practices that minimize environmental and efficacy problems.

- ☑ Choose a pesticide from the UC IPM Pest Management Guidelines for the target pest considering:
  - ✓ Impact on natural enemies.
  - ✓ Potential for water quality problems using the UC IPM WaterTox database.
  - ✓ Impact on aquatic invertebrates. (See Pesticide Choice publication.)
  - ✓ Chemical mode of action if pesticide resistance is an issue.
- ☑ Select an alternative chemical or nonchemical treatment when risk is high.
  - ✓ 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:
  - ✓ 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 ET.
  - ✓ Consider vegetative filter strips or ditches.
  - ✓ Redesign inlets into tailwater ditches to reduce erosion.

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