RUTGERS
New Jersey Agricultural
Experiment Station

This is a section from the

2023/2024
New Jersey Commercial
Tree Fruit Production Guide

The recommendations are **NOT** for home gardener use.

The **full guide** can be found on the Rutgers New Jersey Agricultural Experiment Station (NJAES) website at: *https://njaes.rutgers.edu/pubs/publication.php?pid=e002*. The guide is revised biennially.

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PESTICIDE USE DISCLAIMER

THE LABEL IS THE LAW

A pesticide applicator is legally bound by the labeling found on and with the pesticide container in their possession. Before using a pesticide, check and always follow the **labeling distributed with the product at the point of sale for legally enforceable rates and restrictions**.

In addition to the pesticide products listed in this Production Guide, other formulations or brands with the same active ingredient(s) may be commercially available.
ALWAYS CHECK THE LABELING ON THE PRODUCT CONTAINER ITSELF:
a) to ensure a pesticide is labeled for the same use,
b) to ensure the pesticide is labeled for the desired crop,
c) for differences in rates and percent active ingredient, and
d) additional restrictions.

Check the physical product label for the maximum amount of pesticide per application and the maximum number of applications per year.

IMPORTANT: DO NOT RELY ON ELECTRONIC LABELING (unless it is "web labeling" found directly on the product container)**.** *Online pesticide* labels may not be the same as the labeling distributed with the product. Some services include: Proagrica's CDMS *http://www.cdms.net/*; Agworld DBX powered by Greenbook *https://www.greenbook.net*; or Agrian *https://www.agrian.com/labelcenter/results.cfm.*

These electronic label services provide use disclaimers, and in some cases legally binding User Agreements assigning ALL liability to USER of service. For example, Agrian's webpages***** cite (in red): The *material and content contained in the Agrian Label Database is for general information only. Agrian Inc. does not provide any guarantee or assurance that the information obtained through this service is accurate, current, or correct, and is therefore not liable for any loss resulting, directly or indirectly, from reliance upon this service. This Label Database does not replace the official manufacturer issued label. Users of this database must read and follow the actual product label affixed to the container before use of the product. Use of the Label Database is subject to the Terms of Use and Privacy Policy* ***** [*date accessed: 12/23/2022*].

See a detailed regulatory discussion of this and other essential information on Pesticide Safety and the Pesticide Label in Chapter 1. Electronic labeling is discussed in section 1.3.1.

If you are having a medical emergency after using pesticides, always call 911 immediately.

POISON Help®
1-800-222-1222

In Case of an Accident

- Remove the person from exposure
- Get away from the treated or contaminated area immediately
- Remove contaminated clothing
- Wash with soap and clean water
- Call a physician and/or the National Poison Control Center (1-800-222-1222). Your call will be routed to your State Poison Control Center.
- Have the pesticide label with you!
- Be prepared to give the EPA registration number to the responding center/agency

7 Peaches and Nectarines

7.1 Peach and Nectarine Cultivars

A comparison chart of peach and nectarine cultivars, listed by ripening date in southern New Jersey, is provided in Table 7.1.

Table 7.1 Comparison Chart of Peach and Nectarine Cultivars

Abbreviations: RH=Redhaven, (W) = White-Flesh, (WF) = White Fleshed Flat Peach, (YF) = Yellow-Fleshed Flat Peach.

Ripening Date in Southern NJ	Best Peach Cultivars	Best Nectarine Cultivars	Promising Peach Cultivars for Trial	Promising Nectarine Cultivars
June 25 to July 5 - 22 to 32 days before RH	Desiree NJ 350, Flamin' Fury PF5B, Spring Prince, Sugar May (W), Sunbrite, Spring Snow (W)	Mayfire	Carored, Manon (W), Flamin' Fury PF 5Big, Queencrest, Rich May, Sugar May (W)	Westbrook
July 6 to 12 - 15 to 21 days before RH	Harrow Dawn, Ruby Prince, Sentry	ArcticStar (W)	Early Star, Scarlet Pearl (W)	Jade (W)
July 13 to 19 - 8 to 14 days before RH	Flamin' Fury PF7, Glenglo, Ruby Prince Sentry, Summer Serenade	Arctic Glo (W), Arctic Sweet (W), Easternglo, Honeyblaze	Flamin' Fury PF8 Ball, Galaxy (FW), NJ F 18 (FY), Snowbrite (W), Vulcan	Arrington Silver Gem (W)
July 20 to 26 - 1 to 7 days before RH	Arctic Sweet (W), Flamin' Fury PF11, Flavorcrest, Gala, Saturn (W)	Flamin' Fury PF11, Harblaze	Country Sweet, NJF 15 (FY), Raritan Rose (W), SnowBrite (W), Vinegold, White Cloud (W)	Brigantine, Honeykist, Silverglo (W)
July 27 to August 3 +1 to 7 days after RH	Early Loring, Flamin' Fury PF 15A, Flamin' Fury PF Lucky 13, John Boy, Redhaven Redstar, Starfire, White Lady (W)	Harflame, Summer Beaut	Blaze Prince, Blazing Star, Evelynn, Felicia, Flamin' Fury PF 9A-007, Salem, Snow Beauty (W), TangOs NJF 16 (FY)	Bradley
August 4 to 10 + 8 to 14 days after RH	Bounty , Coralstar, Flamin' Fury PF17, Harrow Beauty, July Prince, Klondike (W), Loring	Arctic Jay (W), Flavortop, Sunglo	Anna Rose (W), Carolina Belle (W), Flamin' Fury PF19-007, Flavrburst, Harrow Fair, Scarlet Prince, TangOsll NJ F17 (FW)	Emeraude (W)
August 11 to 18 + 15 to 22 days after RH	Allstar, Contender, Flamin' Fury PF23, Flamin' Fury PF24-007, Glowing Star	Redgold	Blushingstar (W), Flamin' Fury PF 22-007, Glowingstar, Redkist, Sweet N Up	Arctic Belle (W), Honey Royale
August 19 to 26 + 23 to 30 days after RH	Cresthaven, Flamin' Fury PF Lucky 24B, Flamin' Fury PF25, Gloria NJ 351, Messina NJ 352	Fantasia	Benedicte (W), Early August Prince, Opale (W), Sugar Giant (W), Sweet Breeze	Arctic Gold (W)
August 27 to September 3 + 31 to 35 days after RH	Fayette, Flamin' Fury PF27A, Flamin' Fury PF28-007, Jerseyqueen, Lady Nancy (W), Redskin		August Prince, Selena, Summerfest, Tiana	Stark Ovation, Zephyr (W)

Table 7.1 Comparison Chart of Peach and Nectarine Cultivars - continued on next page

Table 7.1 Comparison Chart of Peach and Nectarine Cultivars - continued

Ripening Date in Southern NJ	Best Peach Cultivars	Best Nectarine Cultivars	Promising Peach Cultivars for Trial	Promising Nectarine Cultivars
September 3 to September 10 + 36 to 43 days after RH	Flameprince, Laurol, Flamin' Fury PF35-007 Fat Lady		Autumn Star, September Rose (W), Snow Giant (W), Yukon King (W)	Arctic Pride (W)
September 10 and later, 44 days or later after RH	Victoria NJ 353		Big Red (CVN #3)	

7.2 Peach and Nectarine Rootstocks

Seedlings of Bailey, Halford, and Lovell are available from many nurseries and are planted by commercial orchardists in New Jersey. Self-pollinated seedlings of Lovell are susceptible to peach-tree borers, mice, oak root fungus, Phytophthora root and collar rot, crown gall, and root knot and lesion nematodes. Peach and nectarine cultivars have excellent compatibility with these seedlings. Trees on self-pollinated Lovell seedlings grow well on all well-drained soils with good anchorage.

Self-pollinated seedlings of Halford have characteristics similar to those of Lovell. Trees perform similarly to those on Lovell seedlings.

Most nurseries procure Lovell seeds from self-pollinated orchard blocks. Halford is often procured by commercial nurseries from western canneries that extract seeds from fruit collected in cross-pollinated orchards. The performance of seedlings from cross-pollinated Halford or Lovell trees will vary from seedlings collected from seed in self-pollinated blocks. Bailey, Tennessee Natural and Guardian seedlings are available from some nurseries. Experience with these rootstocks in other peach-producing areas has been good. Bailey was found in Iowa and has done well in commercial plantings in the Upper Midwestern United States and in Ontario, Canada because of its superior hardiness. Trees on Bailey seedlings have performed well in New Jersey and are similar to Lovell in vigor. Tennessee Natural was found as a wild seedling in the mountains of Tennessee, selected and indexed for viruses. Tennessee Natural selections were used as rootstocks for many peach orchards in the eastern United States during the last century. A seed orchard of Tennessee Natural has been established and is being sold by one nursery in Pennsylvania.

The USDA in Byron, Georgia and Clemson University in Clemson, South Carolina have released the seedling rootstock Guardian, which is planted in many orchards in New Jersey. Guardian produces a vigorous tree with most cultivars and is more tolerant of peach tree short life in southern U.S. test plantings. Guardian has also produced well in growers' plantings in southern New Jersey.

7.3 Thinning and Harvest Management

Blossom Thinning

The removal of blossoms, either by chemicals or by hand, during bloom is very effective in increasing fruit size. The procedure is costly, but can result in as much as 0.25 inch increase in size by the time of normal hand thinning. Blossoms can be removed by hand, with brushes or chemicals, or by the use of tractor mounted hanging ropes and straps. Blossom thinning is expensive, and the risk of crop loss is increased because thinning is done during the season when the occurrence of freezing temperatures is common.

Hand Thinning

The greatest benefit of early fruit thinning is an increase in fruit size. Hand thinning should proceed at bloom, or as soon after bloom as possible. It is common to see padded bats used to dislodge fruit. Bat thinning can lighten

crop load after the fruit has set and is often followed by hand thinning to provide the best results. Hand thinning is preferred since it offers greater control and less limb damage.

A good rule for most cultivars is to space fruit 6 to 8 inches apart. The amount of fruit left on the tree is the key to thinning, not the amount of fruit removed. A mature tree can usually produce 4.0 to 6.0 bushels of large fruit. A bushel of 2.5 inch peaches contains about 150 fruits. Therefore, the average tree can carry 600 to 900 peaches. Count a few limbs as the thinning proceeds to get an estimate of the job being done.

Mechanical Thinning

The first and most important means of fruit thinning is pruning. Pruning can adjust crop load and increase fruit size. Retaining fewer shoots during spring and selection of quality shoots can reduce thinning time and increase fruit size. Most years, it is harder to remove fruit from the tree than it is to grow new fruiting wood. Pruning dramatically reduces blossoms as well as encourages the development of new growth that will be next year's flower buds. It is more economical to handle entire fruiting limbs than it is to thin individual fruit.

Portable hydraulic or pneumatic limb shakers are available, which operate at about 1,000 strokes/minute, and will do a satisfactory thinning job because many limbs are thinned independently. Some hand thinning must follow mechanical shaking if the job is to be complete. Prune to remove willowy fruiting branches that do not transmit shaker vibrations. These practices reduce hand thinning and improve fruit size.

Chemical Thinning

Historically the only materials available for peach thinning worked by burning off the pollen, anthers or stigmas in the flowers, causing blossom thinning. These materials have included the use of the fertilizer/foliar nutrient, ammonium thiosulfate (ATS). While some growers have successfully used ATS for blossom thinning, results are often irregular and overthinning may occur. Fortunately the new peach/nectarine thinner Accede (ACC) has been evaluated for the past several years, and shows efficiacy as a thinning compound (Table 7.2).

Harvest Management

Retain is labeled for stone fruit use. In some cases on some varieties, it has been shown to reduce the rate of fruit drop, prolong harvest and increase fruit firmness and size. **Results have been irregular, and it is not commonly used in New Jersey** (Table 7.3).

Table 7.2 Peach and Nectarine Chemical Thinning

Spray Timing	Chemical Name	Trade Name	Rate
Spray 1: 30%, Bloom Spray 2: 90% Bloom	Ammonium Thiosulfate	ATS (foliar nutrient)	4-6 qt/100 gal and 100 gal per acre
Ammonium Thiosulfate is a fertilizer often used for peach blossom thinning. Because **it is phytotoxic** by nature, it can over-thin under certain slow drying weather conditions, and at high rates.			
Spray 1: Pink bud through full bloom Spray 2: 7-10 days after spray 1 if necessary	1-aminocyclopropane-1-carboxylic acid (ACC)	Accede	23-46 fl oz/acre or 200-400 ppm (100 gal/acre spray volume) per application. Do not exceed a total of 69 fl oz/acre or 600 ppm (100 gal/acre spray volume) per application.

Table 7.3 Peach and Nectarine Harvest Management

Spray Timing[1]	Chemical Name	Trade Name	Rate
One to two weeks prior to anticipated harvest	Aminoethoxyvinylglycine Hydrochloride	ReTain®[2,3]	One pouch per acre, generally 100 gal per acre.

[1]Timing is dependent on cultivar.

[2]Use with a 100% organosilicone surfactant at a final concentration of 0.05 to 0.1% (v/v).

[3]Note Retain® is labeled on other stone fruit including apricot and plums.

7.4 Peach and Nectarine Winter Injury

Injury as a result of cold temperature is common in most orchards. There are three general types of injury to consider:

1. Late-fall cold temperatures.

Since trees harden-off from the twig tips to the trunk, a cold period before the trees become dormant is likely to cause injury to the trunk of the tree. This type of injury is most severe in trees that are growing vigorously late in the summer and fall. Orchard practices that assist the trees in hardening-off properly, such as avoiding late season fertilization and cultivation, and permitting cover crop growth, can control this type of injury.

2. Winter cold temperatures.

The exact temperatures at which damage occurs to dormant trees depend on many factors, including tree vigor, variety, and age. Generally, a temperature of -10°F is sufficient to injure and kill fruit buds. Temperatures colder than -10°F usually injure or kill cambium and bark tissues. This type of injury is somewhat reduced if low areas and areas exposed to north winds are avoided. Cultivars are tested in New Jersey for tolerance to this problem.

3. South-West Injury.

This is by far the most common type of injury. The injury is caused by water and sap movement in the cambium, when bark tissue is warmed by the sun. A sudden drop in temperature results in freeze injury to this tissue. Injury occurs most frequently to the trunk area, but major scaffold limbs are also frequently injured. Although the injury is most prevalent on the southwest side of the trees, all sides can be injured. Death of the trees from this type of injury is most prevalent in 4- to 6-year-old trees, but 2- and 3-year-old-trees are frequently injured, and a decline in vigor usually occurs. Such damage can occur any time after the rest period is completed (January). Treating the trunks with reflective material can control injury from fluctuating temperatures. Use inexpensive interior white latex with low acrylic content. It should be mixed with at least 50% water to form a white wash. This treatment should be used on all peach trees 2- to 8-years-old. For best results, all sides of the trunk should receive the reflective material. During many winters, treatment of the southwest side of the tree is sufficient.

7.5 Peach and Nectarine Insect and Mite Control Strategies

Pesticides can consume a large part of the production budget. There are several things one can do to stabilize or reduce insecticide costs. First, use a Peach and Nectarine IPM program (see section 7.6). Treat only when needed, and use the minimum amounts of pesticide required to do the job.

This Tree Fruit Production Guide summarizes pesticide products and rates to be used for various pests throughout the season. There are times though, when there are several insect or mite pests present at the same time. These **"mini pest complexes"** are often challenging to manage. Minimizing the number of products and rates used at these times will help reduce potential costs while addressing pest control needs. This issue is addressed in the following paragraphs.

Peaches/Nectarines - Prebloom to Petal-Fall

Aphids and Catfacing Insects

The first insect activity of any major economic significance usually occurs at petal-fall. Green peach aphids may start emerging at pink, and catfacing insects may start feeding at about the same time. Catfacing insects (tarnished plant bugs and stink bugs) cannot feed and cause physical injury to the fruit until after petal-fall. Previous to that stage, they may cause only a minor amount of thinning. Therefore, the first peach insecticides should be applied at petal-fall, targeted primarily for catfacing insects and possibly for green peach aphids if they are present.

Thrips and Other Petal-Fall to Shuck Split/Shuck Fall Materials

If the orchard has a history of thrips injury or the planting contains nectarines, then treatment for thrips is advisable. Lannate or Delegate will control this insect. Lannate can be used if green peach aphid control is also desired. Delegate is not effective on aphids, but is effective on Oriental fruit moth (OFM). If this treatment drags into late petal-fall to the shuck-split period, then OFM is also a target, and Plum Curculio (PC) at petal-fall. Lannate is not the best material for OFM or PC. The diamides and premixes containing diamide insecticides – Altacor, Voliam Flexi, Besiege, Exirel, MinectoPro, and Verdepryn are all very effective for OFM. Some of these are also effective for PC such as Besiege, Exirel, MinectoPro and Verdepryn. Avaunt is an excellent material for PC. While growers may be tempted to use synthetic pyrethroids early in the season, these may lead to a mite build-up, and should be avoided until later in the season.

Mites

Available materials include Acramite, Apollo, Envidor, Kanemite (registered on cherries but not peaches or nectarines), Onager/Savey, Nealta, Nexter, Portal, Vendex, and Zeal. While most of these are miticides only, Nexter and Portal will also suppress a few other insect species, but none that are key pests in peaches. Envidor, Apollo and Savey/Onager should be used early in the season on immature mites. Savey and Onager are the same active ingredient, so do not rotate them with each other. Try to limit miticide use to one application per material class per season.

Peaches/Nectarines and Pyrethroids

Because of increased insecticide costs, pyrethroids have seen increased use during the past few years. These materials include Ambush/Pounce/Perm-Up (permethrin), Asana (esfenvalerate), Baythroid (cyfluthrin), Danitol (fenpropathrin), Mustang, Proaxis, and Warrior II/Lambda-Cy (lambda-cyhalothrin), as well as several premixes. In general, these materials have a broad spectrum activity, and are comparatively less costly than other insecticides. However, because they kill a wide range of insects, they often kill beneficial predators and parasites. This can lead to increases in other pest populations such as European red mite or San Jose scale populations which are difficult and costly to control. Therefore, allowances should be made for these possibilities when planning a pyrethroid program. If using pyrethroids, it is best to limit their use to late in the season. This timing may also coincide with a more intensive management program needed for brown marmorated stink bug (BMSB). Dormant or delayed dormant oil use should be automatic if pyrethroids are used. Finally, if mites were a severe problem the previous year, early season miticides should be added to the program. Do not overuse these materials, since overuse can encourage the selection of resistant pest strains.

Border Spray Applications

Brown Marmorated Stink Bug is an invasive stink bug that is a season long pest in peaches. Feeding by BMSB can result in corked or dimpled fruit at harvest. Adult and nymphs can be monitored with clear sticky traps (available from Trece Inc.) on 4’ wooden stakes and baited with an aggregation pheromone. Traps should be placed on the perimeter of the orchard. We do not have a trap based threshold for BMSB in peaches yet but they will provide an indication of activity. A full block spray followed by weekly border-based sprays have been effective in peaches in the Mid-Atlantic region and significantly reduces insecticide use. Borders of the crop have the highest injury and bugs can be observed migrating in from neighboring woodlots, wheat, or other crops but peach is a highly attractive crop to BMSB.

In recent years we have shown that growers can successfully manage BMSB in peaches through the use of border sprays. This integrates sod management in row middles to remove clover by applying clopyralid/Stinger and 2,4-D along with mating disruption for Oriental Fruit Moth with Isomate-OFM TT. Border spray applications begin for BMSB around the last week in May in peaches. Borders are defined as peach trees on the border plus the first full row and treated on a 7 day interval. Any surrounding hedgerow was not treated with insecticide, as this is not a practice we recommend.

Our research showed that catfacing injury at harvest was equal or lower than in comparison blocks using alternate row middle applications (ARM). These practices (mating disruption, sod management, and border

sprays) successfully controlled the target pests and used significantly less active ingredient per acre than conventional practices including ARM sprays. This practice also functions as a resistance management practice for multiple insect pests and likely decreases secondary pest outbreaks, like San Jose scale. We suspect that there is also increased activity of natural enemies in the border-treated blocks.

7.6 Peach and Nectarine Integrated Pest Management

7.6.1 Mating Disruption Technology for Key Peach and Nectarine Insect Pests

Oriental Fruit Moth (OFM)

Pheromone mediated mating disruption

Pheromone mediated mating disruption is a method to control insect populations by preventing mating and reproduction of females within the orchard. Because the immature worm or larva is the stage that damages fruit, prevention of this stage is the goal in any pest management program. Mating disruption uses the same pheromones, or sex attractants, that are used in pheromone traps for monitoring purposes, and pheromones are placed in special longterm release dispensers. Pheromone dispensers are placed throughout the orchard in a manner which 'saturates' the orchard with the pheromone 'scent.' Male insects normally cue in on a plume of pheromone scent emitted by an unmated female. By saturating an area with a synthetic female pheromone, males are prevented from locating the females thus mating is delayed or never takes place.

Use and placement.

Mating disruption works best if populations are low to moderate to start with, if mated females are prevented from entering the orchard area under treatment, and if mating is prevented by any adults that emerge within a treated area. Under very high pest pressure, mating disruption can be one of the tactics in addition to insecticides.

Use the following guidelines to ensure mating disruption success:

1. The area(s) under treatment must be a certain minimum size, usually at least 5 acres. Larger areas under treatment will increase the level of control, especially around orchard borders.
2. Pheromone dispensers should be placed in the orchard before moth emergence.
3. Remember, there are 4 full generations of Oriental fruit moth in New Jersey, and the first or overwintering generation usually starts to emerge in mid-March to early April. Products are season-long and can be placed during pruning or bloom and will disrupt activity throughout the season. If, because of pruning or other management practices, early placement is not possible, then insecticides should be used for the first generation, and mating disruption relied upon for the remaining generations.
4. Dispensers should be evenly placed throughout the orchard based on the number of dispensers/acre on the outsides of the trees, as high up in the tree as possible. Extra dispensers can be placed on border trees.
5. Orchards should be monitored with pheromone traps and other scouting procedures.
6. If tree density has been decreased due to dead trees and open spaces, extra dispensers should be placed on the trees bordering the open spots. It is also helpful to place extra dispensers around the border of mating disrupted areas.
7. There are multiple brands of dispensers commonly available and tested in eastern states: Trécé CIDETRAK® OFM-L MESO™, Checkmate OFM Dispenser, and Isomate-OFM TT (Pacific Biocontrol). Season-long products (including Isomate-OFM TT) will release pheromone for 180+ days and can be placed immediately after pruning at 70 dispensers/A except where pressure is high (100 dispensers/A). Trécé CIDETRAK® OFM-L MESO™, a neoprene-like clip-in dispenser, will release pheromone for 180 days and can be placed at 35 dispensers/acre. The Checkmate OFM Dispenser will release pheromone for 90 to 100 days when placed at a density of 108 dispensers/A and may require reapplication.

8. Because broad-spectrum insecticides are not frequently used in mating disruption orchards, it is important that any orchard under mating disruption should be regularly monitored for the presence of other pests, as well as Oriental fruit moth.

Sprayable pheromone

Mating disruption may also be accomplished by the use of sprayable formulations of pheromone. Checkmate OFM-F (Suterra) can be applied at 1.32 to 2.93 oz/A. The Suterra product works best if applied just prior to each adult flight, and again during the flight. Research has shown that sprayable pheromone should be used with a sticker such as Lastic or Nu-Film-17. As with hand applied dispensers, the orchard should be monitored for OFM and other pests. Application timing and frequency will depend, in part, on the population density, temperature and amount of rainfall.

Lesser Peachtree Borers (LPTB) and Peachtree Borers (PTB)

Research from WVU showed effective disruption of PTB and LPTB in orchards 1.5 acre in size. Growers who wish to control both the lesser peachtree borer and peachtree borer may use the Isomate PTBDual. This dispenser contains both pheromone components for lesser and peachtree borers: (E,Z)-3,13 Octadecadien-1-yl Acetate - 43.46 %, and (Z,Z)-3,13 Octadecadien-1-yl Acetate - 43.07 %. This dispenser is to be used at the rate of 150 dispensers/A, for low to medium populations or infestations, and up to 250 dispensers/A for high populations. Dispensers should be placed prior to moth flight. Under high pest pressure, use extra dispensers at the edge of the border. Keep in mind that there are 2 generations/year of lesser peachtree borer and 1 generation/year of peachtree (greater) borer.

The first summer generation LPTB emerges first, and usually starts around early-May. Mating disruption for borers works the same way as it does for Oriental fruit moth, but with different pheromones. When using mating disruption dispensers for control of borers, the dispensers should be placed in trees just prior to adult emergence in order to prevent the occurrence of mated females flying in the orchard. Therefore, Isomate PTB-Dual should be placed early-May. Dispensers should be placed in the center of the tree at chest height. Use of mating disruption for borers has been shown to be more effective when it is started in young orchards (2nd year trees), and carried through as a management practice for a number of years. Populations at all densities need to be monitored with pheromone traps.

7.6.2 Peach and Nectarine IPM Treatment Guidelines

The following guidelines can be used for key arthropod pests. Because other pests are also present, orchards should be regularly scouted for insects and diseases. Most pests that are not listed here should be treated based on proper timing. Most direct pests, or those that directly damage the fruit, should be managed so that no more than 1% of the fruit shows damage from that pest.

Monitoring and Timing of Oriental Fruit Moth Sprays

First generation and degree day timing

Place at least 2 Pherocon 1C type pheromone traps in the orchard by late-March and check every day for first moth emergence. Record the day of the first sustained catch. The day of first sustained catch is defined as the Biofix point. Start recording degree day (DD) accumulation (base 45°F) after biofix. The timing of sprays or spray targets will be defined in part on what type of insecticide you are using. Ideally, full cover, every middle sprays should be used. If using alternate middle applications, then sprays should be bracketed as closely as possible to the stated timing. Timing may also be influenced by temperature, rainfall and pest pressure. Table 7.4 may be helpful in determining spray timing.

During some seasons when days are very warm, degree days accumulate rapidly, and may dictate that for a specific generation (brood) both the first and second sprays may need to be applied less than a week apart. If the weather is relatively dry, and complete sprays were used, then delay that treatment since sufficient pesticide

residue should still remain for the second treatment to be applied 10+ days after the first spray, regardless of degree day accumulations. Be aware that some newer materials are not effective for PC. Make sure to apply a material that is effective for PC at this time.

Second, third and fourth generations

If using Intrepid, remember that it is an insect growth regulator (IGR), and should be used in full cover, every middle sprays, and at a slightly earlier timing than conventional materials. Use 2 sprays/generation (2nd or 3rd), with the initial treatment being timed by degree day accumulation. A second application should be applied 10-14 days after the previous spray, or may be timed with degree day counts. In addition to monitoring degree days, maintain pheromone traps and monitor once a week. Trap catches of more than 6 to 8 moths/trap/week mean moth populations could be a problem. Treat when trap catches exceed this level, after the expected residue from the previous spray wears out, or about 6-7 days for alternate middle sprays and about 10 days for full cover applications.

Flagging

Larval entry into growing shoots causes terminal flagging. Flags should not be present under normal conditions. Any flagging means that larvae are present, and indicates that changes may be needed in the spray program.

Fruit counts

Weekly examinations should be made of about 200 fruit in each block. Scan the fruit for the presence of entry holes and frass, especially near the stem end. The presence of any entries means the management program needs to be changed. Changes may include recalibrating the sprayer, slowing tractor speed to 2 mph, decreasing the spray interval, increasing spray volume, increasing the insecticide rate, or changing materials.

Table 7.4 Oriental Fruit Moth Timing

Degree Day (DD_{45}) Spray Targets From Biofix				
	Degree Day Timings and Insecticide Type			
Generation	**Conventional**	**Intrepid, Rimon (IGR[1])**	**Diamides/Virus**	**MD**
1	170-200 350-375	use conventional insecticides	100-150 300-325	apply at first flight
2	1150-1200 1450-1500	1050-1150 1350-1450	1075-1150 1375-1450	n/a
3	2100-2200 2450-2500	2000-2100 2350-2450	2025-2150 2375-2450	n/a
4	monitor traps, if needed, late season chemicals for BMSB may manage populations			

[1] IGR = Insect Growth Regulator. **Note**: The diamides should be applied closer to 100-150 DD after biofix for the first treatment, and about 50-75 DD earlier for all additional treatments compared to the OP/carbamate timing. If Madex HP virus is used, apply at Diamide timing +5 days.

Plum Curculio

Plum curculio (PC) adults become active in early spring when temperature rise above 45°F and activity within the orchard begin when temperatures are within 50-60°F for a few days, typically around the same time as bloom. Adults feed on developing fruit and females oviposit, leaving crescent shaped scars. Injury begins at petal fall and can continue for a few weeks, depending on temperature. In the last few years with cool springs NJ growers have experienced high PC populations. Hot weather may slow down populations. Injury is generally highest along orchard edges, especially those with a wooded border. Monitoring can be done with a baited black pyramid trap or through visual inspection of fruit for scars. Imidan (followed by Delegate), Exirel, Actara and Avaunt are effective chemicals. If using Actara keep in mind the use restrictions as it is also an effective material against BMSB and will not target OFM which is typically active at this time. A phenology model was developed at Rutgers University to time management of PC in peaches (*https://plant-pest-advisory.rutgers.edu/plum-curculio-phenology-model/*),

starting degree-day accumulations on January 1 using a base temperature of 50°F (Table 7.5). Management against the adults should target at minimum 200, 290, 520-730 DD_{50}.

Table 7.5 Degree Development of Plum Curculio

	Biofix at January 1 and base 50°F
Phenological event	**Mean**
First trap catch	200
First peak trap catch	290
First egg lay in fruit	520
Peak egg laying	730
Peak trap catch of second generation	2025

Tarnished Plant Bug and Stink Bugs

Monitor the ground cover with a sweep net, taking 2 sets of 25 sweeps. There is no standard treatment threshold, but past experience has shown that when the total count exceeds 3-4 combined tarnished plant bugs and stink bugs, potential problems exist. Weedy ground covers and woods borders exacerbate the problem. Greater than 1 to 2% fresh catfacing injury on the fruit means that adjustments have to be made in the spray program.

Brown Marmorated Stink Bug

Brown Marmorated Stink Bug (BMSB) is an invasive species whose populations have become damaging in New Jersey since its introduction. For identification and to distinguish from native stink bug species, visit *http://www.stopbmsb.org/stink-bug-basics/life-stages/* or *http://njaes.rutgers.edu/stinkbug/similar.asp*. BMSB is a highly mobile pest that feeds on many agricultural crops including tree fruit as well as woody shrubs and trees found in the wood borders on a farm. Unlike some orchard pests, BMSB can cause damage throughout its life cycle and is present for much of the growing season. There are a large number of compounds that are effective against BMSB, however many have short residual activity and require multiple applications. Be cautious about over use of pyrethroid insecticides, which may cause secondary pest (scale, mites, and aphids) outbreaks.

Monitoring

Unlike native stink bug species, BMSB is not found in the ground cover. Monitoring to detect populations is best made through aggregation pheromone traps. BMSB moves into an orchard from either the woods edge or disperses from other crops. Initial monitoring on host plants can be done on the orchard perimeter. Additional inspections of fruit will help to determine damage, as this pest can be difficult to detect. We currently do not have economic or treatment thresholds but can use 1 to 2% catfacing injury on fruit as guidelines. Based on phenology, management is not necessary until the end of May or ~160 DD_{57}.

Phenology

Rutgers has developed and is testing a phenological model to predict populations in the field. Termination of overwintering state requires a lengthening of photoperiod and thus early warming periods will not speed up activity. Adults disperse to the orchard, especially peach, at ~100-160 DD (accumulations starting April 22), generally the second to third week of May. The adults dispersing into the orchard are becoming reproductively mature and egg masses can be found in about 1 week or 160-300 DD. The first adults appearing in the orchard are generally found in peach, which is a highly suitable host plant. BMSB requires 1000 DD (base 57°F) to complete development from egg to adult. Adults will move in and out of peach orchards and eventually into apple throughout the season. Nymphs can complete their development in peach. We have two generations of BMSB with second generation adults peaking in mid-late July.

Tufted Apple Budmoth

Place pheromone traps in early April and record first moth catch as with Oriental fruit moth. Record degree days (base 45°F). Use Table 7.6 as a guide for timing.

When this insect is present, second generation larvae are usually more problematic than first generation larvae. Therefore, if spraying for this insect, concentrate on those varieties that ripen after mid-August. If orchards have a history of tufted apple budmoth (TABM) problems, be sure to treat the first generation.

Table 7.6 Tufted Apple Budmoth Timing

Degree Day (DD) Spray Targets from Biofix based on Insecticide Type				
Brood	**Op's, Carbamates, Delegate, Pyrethroids (Conv.), Diamides[1]**		**Intrepid**	***Bacillus thuringensis* (Bt)**
	ALT. MID.	**COMPLETE**	**COMPLETE**	**COMPLETE**
1	475-505	530-585	500-650	585-640
	610-640			
	750-775	805-855	805-850	805-855
	885-910			
2	2210-2245	2280-2355	2355-2435	2355-2435
	2395-2435			
	2585-2625	2665-2740	2665-2740	2585-2665
	2775-2815			2815-2890

[1] Diamides (Altacor, Besiege, Exirel, Verdepryn, and Voliam) should be applied @500-525 DD complete sprays or about 30-60 DD earlier than other complete sprays compared to OP/carbamte/pyrethroid timing.

Green Peach Aphid

Conduct whole tree exams between pink bud to about 3 weeks after petal fall for the number of aphid colonies/tree. For mature peach trees, treat if colonies exceed 2 colonies/tree by petal fall to shuck-split, or 5 to 6 colonies/ tree by mid- to late May. Tolerate no more than 1 colony/tree on nectarines.

European Red Mite and Two Spotted Spider Mite

Collect at least 20 older leaves from several trees throughout the fruit canopy. Peaches tolerate more mites than apples, so higher populations can be allowed. Treat if there are more than 10 mites/leaf during early to mid-season, and 20 mites/leaf during the late season, or up to 3 weeks preharvest.

7.7 Efficacy of Pesticides for Peach and Nectarine Disease, Insect and Mite Control

Table 7.7 Efficacy of Fungicides and Bactericides for Peach and Nectarine Disease Control

(++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated)

Note: Fungicide Resistance Management

Risk of resistance development in FRAC groups 1, 11, and 41 is high; group 2 is medium to high; groups 3, 7, and 9 medium; groups 14 and 17 low to medium; and groups M1-M5 low. Resistance management is reccommended for group M7. All materials, except for those in groups M1-M5, should be alternated or mixed with fungicides of a different chemistry. For example, for preharvest brown rot control, alternate with materials from groups 1, 17, 3, 11, and 7.

Chemistry (FRAC)	Fungicide or Bactericide	Bacterial Spot	Brown Rot		Leaf Curl	Peach Scab	Rhizopus Rot	Rusty Spot
			Blossom Blight	Fruit Rot				
BIORATIONAL (NC)	Serenade MAX 14.6WP[1]	-	-	-	-	-	-	+++
	Arimicarb 100 85SP[1]							+++
	Kaligreen 82SP[1]							+++
INORGANIC COPPER (M1)	Copper, fixed	+++	-	-	++	-	-	-
INORGANIC SULFUR (M2)	Sulfur	-	++	++	+	+++	-	++
DITHIOCARBAMATE (M3)	Ferbam 76WDG	-	++	-	++++	-	-	-
	Thiram 75WDG	-	++	-	-	++	-	-
	Ziram 76DF	-	++	++	++++	++	-	-
PHTHALIMIDE (M4)	Captan 80WDG	-	++	+++	+	+++	+	-
CHLORONITRILE (M5)	Bravo Weather Stik 6F	-	++	-	++++	+++	-	-
MBC (1)	Topsin M WSB	-	++++	++++	+	+++	-	+
DICARBOXIMIDE (2)	Rovral 4F, Meteor 4F	-	++++	-	-	-	-	+
DMI (3)	Indar 2F	-	++++	++++	-	+	-	++
	Bumper, PropiMax, Tilt	-	+++	++++	-	-	-	++
	Cevya 3.34SC	-	+++	++++	-	-	-	+++
	Orius AQ 1.67F	-	++++	++++	-	-	+++	++
	Quash 50WDG	-	+++	++++	-	++	-	++
	Rally 40WSP	-	++	+++	-	-	-	++++
	Topguard, Rhyme 2.08SC	-	-	++	-	-	-	++++
DMI + QoI (3 +11)	Quadris Top 2.72SC	-	++++	++++	-	++++	+	+++
AP (9)	Vangard 75WG	-	+++	-	-	-	-	-
SDHI (7)	Fontelis 1.67SC	-	++++	+++	-	++	+	++
	Miravis 1.67SC	-	++	+++	-	-	-	-
DMI + AP (3 + 9)	Inspire Super 2.82EW	-	++++	+++	-	+++	-	+++
DMI + SDHI (3 + 7)	Luna Experience 3.34SC	-	++++	+++	-	+	-	++
QoI (11)	Abound 2F	-	+++	+++	+	+++	-	++
	Flint Extra 4.05SC	-	+++	+++	+++	+++	-	+++
QoI + SDHI (11 + 7)	Luna Sensation 4.2SC	-	++++	++++	-	+++	-	+++
	Merivon 4.18SC	-	++++	++++	-	++	+++	++
	Pristine 38WG	-	++++	++++	+++	++	-	++
AROMATIC (14)	Botran 75WP	-	+	+	-	-	+++	-
HYDROXYANILID (17)	Elevate 50WDG	-	++	++	-	-	-	-
POLYOXIN (19)	Oso 5%SC	-	-	+++	-	-	-	-
ANTIBIOTIC, TETRACYCLINE (41)	FlameOut 17WP	+++	-	-	-	-	-	-
	Mycoshield 17WP							
	FireLine 17WP							

[1] Rusty spot ratings pertain to usage with Rally in an integrated rusty spot program.

Table 7.8 Efficacy of Insecticides and Acaricides for Peach and Nectarine Insect and Mite Control

(++++ = excellent, +++ = good, ++ = fair, + = poor/not recommended, S = suppressive, – = ineffective or not rated)

INSECTICIDE/ACARICIDE AND FORMULATION	INSECTS[1]											MITES[2]		
	FT	GPA	JB	LR	OFM	PC	LPTB	PTB	BMSB	SB/ TPB	WP/ SJS[1]	ERM	PSM	TSM
Acramite 50WS	–	–	–	–	–	–	–	–	–	–	–	++++	+++	++++
Actara 25WDG	–	++++	+	–	–	+++	–	–	+++	+++	–	–	–	–
Admire Pro	–	++++	+++	–	–	S	–	–	–	–/+	++	–	–	–
Agri Mec SC	–	–	–	–	–	–	–	–	–	–	–	++++	–	++++
Altacor	–	–	–	++++	++++	–	–	–	–	–	–	–	–	–
Ambush 25W	–	+	+++	++++	++++	++	+++	+++	++	++	–	–	–	–
Apollo SC	–	–	–	–	–	–	–	–	–	–	–	++++	++	++++
Apta/Bexar	–	+++	–	++	–	+++	–	–	S	S	–	–	–	–
Asana XL	–	+	+++	++++	++++	++	+++	++	++	+++	–	–	–	–
Assail 30SG	–	++++	+++	–	+++	++	–	–	++	++/+++	+++	–	–	–
Avaunt	–	–	+++	+++	+++	++++	++	–	+	++	–	–	–	–
Bacillus thuringiensis	–	–	–	+++	+	–	–	–	–	–	–	–	–	–
Baythroid XL	–	+	+++	++++	++++	++	+++	–	+++	++++	–	–	–	–
Belay	–	++++	–	–	–	+++	–	–	++++	++++	+++	–	–	–
Beleaf 50SG	–	+++	–	–	–	–	–	–	+	+++	–	–	–	–
Besiege	–	+	+++	++++	++++	++	–	–	+++	+++	–	–	–	–
Centaur	–	–	–	–	–	–	–	–	–	–	++++	–	–	–
Closer SC	++	++++	–	–	–	–	–	–	+	++	++	–	–	–
Cormoran	–	++++	++	+++	++++	++	++	++	++	+++	+++	–	–	–
Danitol 24EC	–	–	+++	++++	+++	++	–	–	++	++++	–	++	++	++
Delegate 25WG	+++	–	–	++++	++++	+	–	–		–	–	–	–	–
Diazinon 50W	–	–	+++	++	+++	+++	–	–	–	++	+++	–	–	–
Endigo ZC	–	++++	+++	++++	++++	++	–	–	++++	+++	–	–	–	–
Entrust SC	++++	–	–	++++	+++	–	–	–	–	–	–	–	–	–
Envidor 2SC	–	–	–	–	–	–	–	–	–	–	–	++++	++++	++++
Esteem 35WP	–	+++[3]	–	–	+++[4]	–	–	–	+	–	++++	+	–	+
Exirel	–	–	–	–	++++	+++	–	–	–	–	–	–	–	–
Gladiator	–			++	++++	+++	+++	++	+++	++/+++		+++	–	+++
Imidan 70W	–	+	+++	++	+++	++++	–	–	–	+++	+	–	–	–
Intrepid 2F	–	–	–	+++	+++	–	–	–	–	–	–	–	–	–
Lambda-Cy/Warrior II	–	+	++++	++++	++++	++	–	–	+++	+++	–	–	–	–
Lannate	+++	+++	+++	+++	+++	++	+	+	++	+++	–	–	–	–

Table 7.8 Efficacy of Insecticides and Acaricides for Peach and Nectarine Insect and Mite Control - continued on next page

PEACHES AND NECTARINES

Table 7.8 Efficacy of Insecticides and Acaricides for Peach and Nectarine Insect and Mite Control - continued

INSECTICIDE/ACARICIDE AND FORMULATION	INSECTS[1]											MITES[2]		
	FT	GPA	JB	LR	OFM	PC	LPTB	PTB	BMSB	SB/ TPB	WP/ SJS[1]	ERM	PSM	TSM
Leverage 360	–	++++	+++	++++	++++	++	–	–	+++	++++	++	–	–	–
Madex HP	–	–	–	–	++++	–	–	–	–	–	–	–	–	–
Minecto Pro	–	–	–	–	++++	+++	–	–	–	–	–	++++	–	++++
Movento	–	++++	–	–	–	–	–	–	–	–	++++	–	+++	–
Mustang Maxx	–	+	+++	++++	++++	++	–	–	+++	+++	–	–	–	–
Nealta	–	–	–	–	–	–	–	–	–	–	–	++++	–	++++
Nexter 75WP	–	–	–	–	–	–	–	–	–	–	–	++++	++	++
Oil 70 sec	–	–	–	–	–	–	–	–	–	–	++++	++++	–	–
Onager EC	–	–	–	–	–	–	–	–	–	–	–	++++	+	++++
Perm-UP	–	+	+++	++++	++++	++	+++	+++	++	++	–	–	–	–
Portal XLO	–	–	–	–	–	–	–	–	–	–	–	+++	–	+++
Pounce 25WP	–	+	+++	++++	++++	++	+++	+++	++	++	–	–	–	–
Proaxis	–	+	++++	++++	++++	++	–	–	–	++++	–	–	–	–
Rimon 0.83EC	–	–	–	++++	++++	–	++	++	–	–	–	–	–	–
Savey 50DF	–	–	–	–	–	–	–	–	–	–	–	++++	+	++++
Scorpion	–	+	–	–	–	–	–	S	+++	++++	–	–	–	–
Sevin XLR Plus	–	+	++++	–	+++	++	+	+	-	–	–	–	–	–
Sivanto Prime	–	+	–	–	–	–	–	–	–	–	++	–	–	–
Vendex	–	–	–	–	–	–	–	–	–	–	–	+++	+++	+++
Venerate XC	–	–	–	–	+++	–	–	–	+++	+++	+++	–	–	–
Venom	–	+	–	–	–	–	–	S	+++	++++	–	–	–	–
Verdepryn 100SL	–	–	+++	++++	++++	+++	–	–	+	+	–	–	–	–
Versys	–	++++	–	–	–	–	–	–	–	–	–	–	–	–
Voliam Flexi WG	–	+++	–	++++	++++	+++	–	–	+++	+++	–	–	–	–
Zeal	–	–	–	–	–	–	–	–	–	–	–	++++	–	++++

[1] Some products labeled for SJS are not labeled for WPS. Check the product label before using for WPS.

[1] **FT** = Flower Thrips	**LPTB** = Lesser Peachtree Borer	[2] **ERM** = European Red Mite
GPA = Green Peach Aphid	**PTB** = Peachtree Borer	**PSM** = Peach Silver Mite
JB = Japanese Beetle	**BMSB** = Brown Marmorated Stink Bug	**TSM** = Two-Spotted Spider Mite
LR = Leafrollers	**SB** = Stink Bugs (native species only)	[3] When applied pink-bloom
OFM = Oriental Fruit Moth	**TPB** = Tarnished Plant Bug	[4] Early season
PC = Plum Curculio	**WP/SJS** = White Peach/San Jose Scale	

7.8 Peach and Nectarine Disease and Pest Management

Peach and Nectarine Disease Management Program – Fungicide and Bactericide Timing

See also Table 7.7 Efficacy of Fungicides and Bactericides for Peach and Nectarine Disease Control.

Disease	Dor-mant	Pink	Bloom	Petal Fall	Shuck Split	Covers[1]						Preharvest			Post-harvest
						1	2	3	4	5	6	PH3	PH2	PH1	
Leaf Curl[2]	■	▒	▒	▒											■
Brown Rot Blossom Blight		■	■	▒											
Rusty Spot[3]				■	■	■	■	▒							
Scab[4]				▒	■	■	■	■	■	▒	▒				
Bacterial Spot				▓	■	■	■	■	▓	▓	▓				
Anthracnose Fruit Rot[5]										■	■	■	■	■	
Brown Rot Fruit Rot												■	■	■	
Rhizopus Fruit Rot												■	■	■	■
Constriction Canker[6]	■														■

Key: ■ = Optimum timing ▒ = Some control possible ▓ = Highly susceptible cultivars

[1]Late maturing cultivars will require additional cover sprays. [2] Leaf curl can be controlled by either a fall application (after all leaf drop) or spring application just prior to bud swell. [3] Rusty spot is controlled with sprays from PF-2C; in early warm seasons, a 3C spray is advised for susceptible cultivars. [4] A petal fall spray with an anti-sporulant fungicide is advised if scab was previously problematic in block. [5] Only spray for anthracnose if disease occurred during previous seasons and conditions warm and wet. [6] Postharvest and dormant sprays provide about 70% control; **remove cankers during mid-late summer for greater control**

Peach and Nectarine Insect and Mite Pest Management Program – Insecticide and Acaricide Timing

See also sections 7.5 through 7.7 for Insect and Mite Control Strategies, IPM, and Efficacy of Pesticides.

Insect and Mite Pests	Dormant	Delayed Dormant	Pink-Bud	Bloom	Petal-Fall (100%)	Shuck-Split	1st Cover	2nd Cover	3rd and	4thh Cover	5th Cover	6th & later Covers	Pre-Harvest	Post-Harvest
White Peach/San Jose Scale	▒	■	▒	Do not apply insecticides during bloom!		▒	■		■		▒			
Native Stink Bugs					■	■	■	■	■		■	■	■	
Tarnished Plant Bug			▒		■	■	■	▓	▓		■	■	■	
Green Peach Aphid					▓	■	▓							
Leafrollers, Tufted Apple Budmoth					▓	▓	■	■			■	■		
Oriental Fruit Moth					■	■		■	■		■	■		
Plum Curculio					■	■	■	▓	▓	▓	▓			
Thrips					▒	▒							■	
Brown Marmorated Stink Bug							▒	■	■	■	■	■	■	
Japanese/June Beetle									■	■	▒	▒	▒	
Lesser Peach Tree Borer								■	■					■
Peach Tree Borer														■
European Red Mite	eggs	eggs			▒	▒	▒	▒	■	■	■			▒
Peach Silver Mite					▒	▒	▒	▒	■	■	■			▒
Two Spotted Spider Mite							▒	▒	■	■	■			▒

Key: ■ = Optimum timing ▒ = Some control possible

The Label is the Law
A pesticide applicator is legally bound by the labeling found on and with the pesticide container in their possession. Before using a pesticide, check and always follow the **labeling distributed with the product at the point of sale for legally enforceable rates and restrictions. See the Pesticide Use Disclaimer on page 2.**

Observe cautions on the product label to minimize potential exposure to bees and other pollinating insects.

The following Insect and Mite Pest Management Tables are listed for individual cover sprays, but growers should think about whole season approaches, see section 7.5 Peach and Nectarine Insect and Mite Control Strategies, and 7.6 Peach and Nectarine Integrated Pest Management.

Abbreviations

Stone Fruit Preharvest Interval Key		Units of Measurement	
D	Dormant application only	/A	per acre
PB	No later than prebloom	d	day(s)
FB	No later than full bloom	fl oz	fluid ounce(s)
PF	No later than petal-fall	gal	gallon(s)
SS	No later than shuck-split	h	hour(s)
SF	No later than shuck-fall	lb	pound(s)
FC	No later than first cover	oz	ounce(s)
NTL	No time limit (usually up to the day of harvest) - consult label	pt	pint(s)
		qt	quart(s)
NA	Not applicable		

DORMANT — PEACHES AND NECTARINES

DISEASE	Leaf Curl[1]	Constriction Canker[7]			
Product and Formulation	**Product Efficacy Rating[2] and Rate/A[3]**				**REI PHI**
Bordeaux mixture (lb/100 gal)	++ 4, 6				24 h NA
Bravo Weather Stik 6F[4] (pt)	++++ 3.0-4.0	++++ 3.0 – 4.0			12 h SS
Copper, fixed[5]	++ various rates				12-48 h various
Ferbam 76WDG (lb)	++++ 4.0				24 h 21 d
Lime Sulfur 10.6F[6] (gal)	+ 6.0-8.0				48 h NTL
Ziram 76DF (lb)	++++ 3.75-8.0				48 h 14 d

[1] This leaf curl spray is not needed if an application was made after leaf fall during the previous season.
[2] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.
[3] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.
[4] Generic products and/or other formulations are available.
[5] Copper may also help reduce epiphytic inoculum for bacterial spot; some available materials are Champ, Kocide, Nu-Cop, and Cuprofix.
[6] Lime sulfur best applied as a dilute spray.
[7] Apply one Bravo spray late dormant and a second spray during bud swell to protect bud-scale scars. See posharvest table and section 6.3, Fungicides and Bactericides, for further details.

DORMANT AND DELAYED DORMANT					PEACHES AND NECTARINES
INSECT OR MITE PEST	**INSECTS**	**MITES**			
	White Peach/ San Jose Scale	**European Red Mite Eggs**			
Product and Formulation[1]	**Product Efficacy Rating[2] and Rate/A[3]**				**REI PHI**
Superior Oil (gal)	++++ 4.0-6.0	++++ 4.0-6.0			4 h 0 d
Venerate XC (qt)	+++ 2.0-4.0	–			4 h 0 d
Centaur WDG (oz)	++++ 34.5	–			12 h 14 d
ONE OF THE FOLLOWING MAY BE ADDED					
Diazinon 50W[4] (lb)	+++ 2.0-3.0	–			96 h 21 d
Esteem 35WP (oz)	++++ 4.0-5.0	–			12 h 14 d

[1] When noted, generic products are available.

[2] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.

[3] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[4] Only 2 applications allowed per year: 1) A maximum of one may be a dormant application, and 2) A maximum of one may be an in-season foliar application.

[5] PHI Key: PB = No later than prebloom.

PINK-BUD AND BLOOM					PEACHES AND NECTARINES
DISEASE	**Brown Rot Blossom Blight**				
Product and Formulation[1]	**Product Efficacy Rating[2] and Rate/A[3]**				**REI PHI**
Abound 2F (fl oz)	+++ 12.0-15.5				4 h 0 d
Bravo Weather Stik 6F[4] (pt)	++ 3.0-4.0				12 h SS[6]
Bumper/Tilt[4] (fl oz)	+++ 4.0				24 h 0 d
Captan 80WDG[4] (lb)	++ 2.5				24 h 0 d
Cevya 3.34SC (fl oz)	+++ 3.0-5.0				12 h 0 d
Elevate 50WDG (lb)	++ 1.5				12 h 0 d
Ferbam 76WDG (lb)	++ 4.0				24 h 21 d
Fontelis 1.67SC (fl oz)	++++ 14.0-20.0				12 h 0 d
Flint Extra 4.05SC (fl oz)	++++ 2.5-3.8				12 h 1 d
Indar 2F (fl oz)	++++ 6.0				12 h 0 d
Inspire Super 2.82EW (fl oz)	++++ 16.0-20.0				12 h 2 d

Pink Bud and Bloom DISEASE - continued on next page

Pink Bud and Bloom DISEASE - continued

PINK-BUD AND BLOOM					PEACHES AND NECTARINES
DISEASE	**Brown Rot Blossom Blight**				
Luna Experience 3.34SC (fl oz)	++++ 6-10				12 h 0 d
Luna Sensation 4.2SC (fl oz)	++++ 5-7.6				12 h 1 d
Merivon 4.18SC (oz)	++++ 4.0-6.7				12 h 0 d
Miravis 1.67SC (fl oz)	++ 3.4-5.1				4 h 0 d
Orius AQ 1.67F (fl oz)	++++ 8.6-17.2				12 h 0 d
Pristine 38WG (fl oz)	++++ 10.5-14.5				12 h 0 d
Quadris Top 2.72SC (fl oz)	++++ 12.0-14.0				12 h 0 d
Quash 50WDG (oz)	+++ 2.5-3.5				12 h 14 d
Rally 40WSP (oz)	++++ 2.5-6.0				24 h 0 d
Rovral 4F (pt)	++++ 1.0-2.0				24 h PF[6]
Sulfur, actual[5] (lb)	++ 10.0-12.0				24 h NTL[6]
Topsin M WSB (lb) plus Captan 80WDG (lb)	+++ 0.5-0.75 plus 1.25-2.5				48 h 1 d
Topsin M WSB (lb) plus Sulfur, actual[5] (lb)	+++ 0.5-0.75 plus 6.0-12.0				48 h 1 d
Vangard 75WG (oz)	+++ 5.0				12 h 2 d
Ziram 76DF (lb)	++ 4.5-8.0				48 h 14 d

[1] Alternate products of different chemistry for resistance management; see Table 7.7 for details.
[2] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.
[3] Rates are in amount of formulated product per acre, urwise noted.
[4] Generic products and/or other formulations are available.
[5] Do not use sulfur if temperature is expected to exceed 90°F after spraying.
[6] PHI Key: NTL = No time limit (usually up to the day of harvest) - consult label, PF = No later than petal-fall, SS = No later than shuck-split.

PINK-BUD[1]					PEACHES AND NECTARINES
INSECT PEST	**Native Stink Bugs[1]**	**Tarnished Plant Bug[1]**	**White Peach/ San Jose Scale**		
Product and Formulation	**Product Efficacy Rating[2] and Rate/A[3]**				**REI PHI**
Ambush 25W[4] (oz)	++ 6.4-19.2	++ 6.4-19.2	–		12 h 14 d
Asana XL[4] (fl oz)	+++ 8.0-10.0	+++ 6.0-10.0	–		12 h 14 d
Besiege (fl oz)	+++ 9.0-12.0	+++ 9.0-12.0	–		24 h 14 d
Baythroid XL (fl oz)	++++ 2.0-2.4	++++ 2.0-2.4	–		12 h 7 d

Pink Bud INSECT PEST - continued on next page

Pink Bud INSECT PEST - continued

PINK-BUD[1]			PEACHES AND NECTARINES		
INSECT PEST	**Native Stink Bugs[1]**	**Tarnished Plant Bug[1]**	**White Peach/ San Jose Scale**		
Danitol 2.4 EC (fl oz)	+++ 10.6-21.3	++++ 10.6-21.3	–		24 h 3 d
Imidan 70W[5] (lb)	+++ 2.5-3.0	+++ 2.5-3.0	–		4/14 d[5] 14 d
Lambda-Cy (fl oz)	+++ 2.56-5.12	+++ 2.56-5.12	–		24 h 14 d
Perm-UP 3.2EC (fl oz)	++ 4.0-10.0	++ 4.0-10.0	–		12 h 14 d
Pounce 25WP[4] (oz)	++ 6.4-16.0	++ 6.4-16.0	–		12 h 14 d
Sivanto Prime (fl oz)	–	–	++ 10.5-14.0		4 h 14 d
Warrior II[4] (fl oz)	+++ 1.28-2.56	+++ 1.28-2.56	–		24 h 14 d

[1] Insecticides are generally not recommended for the catfacing insect complex pre-bloom. Prebloom catfacing control may be advisable under circumstances where cropping is light due to frost or blossom thinning and populations are found to be high through orchard scouting.

[2] Efficacy rating: ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.

[3] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[4] When noted, generic products are available.

[5] Imidan REI 4 days for farm labor, but 14 days for u-pick operations.

BLOOM	PEACHES AND NECTARINES
INSECT PEST	**Do not apply insecticides during bloom!**

PETAL-FALL (100% PETAL FALL)			PEACHES AND NECTARINES		
DISEASE	**Brown Rot Blossom Blight[1]**	**Rusty Spot[2]**	**Scab[9]**	**Bacterial Spot[10]**	
Product and Formulation[3]	**Product Efficacy Rating[4] and Rate/A[5]**				**REI PHI**
Abound 2F (fl oz)	++++ 12.0-15.5	++ 12.0-15.5	+++ 15.5		4 h 0 d
Bravo Weather Stik 6F[6] (pt)	++ 3.0-4.0	–			12 h SS[8]
Bumper/Tilt[6] (fl oz)	+++ 4.0	++ 4.0			24 h 0 d
Captan 80WDG[6] (lb)	++ 2.5	–			24 h 0 d
Cevya 3.34SC (fl oz)	+++ 3.0-5.0	+++ 4.0-5.0			12 h 0 d
Elevate 50WDG (lb)	++ 1.5	–			12 h 0 d
Ferbam 76WDG (lb)	++ 4.0	–			24 h 21 d

Petal Fall (100% Petal Fall) DISEASE - continued on next page

Petal Fall (100% Petal Fall) DISEASE - continued

PETAL-FALL (100% PETAL FALL)				PEACHES AND NECTARINES	
DISEASE	**Brown Rot Blossom Blight[1]**	**Rusty Spot[2]**	**Scab[9]**	**Bacterial Spot[10]**	
Flint Extra 4.05SC (fl oz)	++++ 2.5-3.8	+++ 2.5-3.8	++++ 3.8		12 h 1 d
Fontelis 1.67SC (fl oz)	++++ 14.0-20.0	++ 14.0-20.0			12 h 0 d
Indar 2F (fl oz)	++++ 6.0	++ 6.0			12 h 0 d
Inspire Super 2.82EW (fl oz)	++++ 16.0-20.0	+++ 16.0-20.0			12 h 2 d
Kocide 3000 30DF[5] (oz)	–	–	–	+++ 1.0-1.7	24 h 0 d
Luna Experience 3.34SC (fl oz)	++++ 6-10	++ 6-10			12 h 0 d
Luna Sensation 4.2SC (fl oz)	++++ 5-7.6	+++ 5-7.6			12 h 1 d
Merivon 4.18SC (fl oz)	++++ 4.0-6.7	++ 4.0-6.7			12 h 0 d
Miravis 1.67SC (fl oz)	++ 3.4-5.1	–			4 h 0 d
Mycoshield 17WP[5] (lb)	–	–	–	+++ 1.0-1.5	12 h 21 d
Orius AQ 1.67F (fl oz)	++++ 8.6-17.2	++ 8.6-17.2			12 h 0 d
Pristine 38WG (oz)	++++ 10.5-14.5	++ 10.5-14.5			12 h 0 d
Quadris Top 2.72SC (fl oz)	++++ 12.0-14.0	+++ 12.0-14.0			12 h 0 d
Quash 50WDG (oz)	+++ 2.3-3.5	+ 2.3-3.5			12 h 14 d
Rally 40WSP[2] (oz)	++ 2.5-6.0	++++ 2.5-6.0			24 h 0 d
Rhyme 2.08SC (fl oz)	–	++++ 7.0			12 h 7 d
Rovral 4F (pt)	++++ 1.0-2.0	–			24 h PF[8]
Sulfur, actual[6, 7] (lb)	++ 10.0-12.0	++ 10.0-12.0			24 h NTL[8]
Topsin M WSB (lb) plus Captan 80WDG (lb)[6]	+++ 0.5-.075 plus 1.25-2.5	–			48 h 1 d
Topsin M WSB (lb) plus Sulfur, actual (lb)[6, 7]	+++ 0.5-0.75 plus 6.0-12.0	+ 0.5-0.75 plus 6.0-12.0			48 h 1 d
Ziram 76DF (lb)	++ 4.5-8.0	–			48 h 14 d

[1] If weather conditions are favorable, a third blossom blight spray should be applied. Some materials are only registered for two bloom sprays.

[2] Integrated biorational rusty spot program: Alternate Rally at petal fall and first cover with a potassium bicarbonate product (*e.g.*, Kaligreen, Carb-O-Nator, etc…) or Serenade Max at shuck-split and second cover.

[3] Alternate products of different chemistry for resistance management; see Table 7.7 for details.

[4] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.

[5] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[6] Generic products and/or other formulations are available.

[7] Do not use sulfur if temperature is expected to exceed 90°F after spraying.

[8] PHI Key: NTL = No time limit (usually up to the day of harvest) – consult label, PF = No later than petal-fall, SS = No later than shuck-split.

[9] A petal fall spray with an anti-sporulant fungicide (Flint extra or Abound) is advised if scab was previously problematic in block.

[10] For highly susceptible cultivars, warm and wet springs, or if using a biorational bactericide, apply first bacterial spot spray at petal fall.

PETAL FALL (100% PETAL FALL) — PEACHES AND NECTARINES

See also table: Miticides for Postbloom Use. Do NOT apply insecticides during bloom.

INSECT PEST	Green Peach Aphid	Leaf roller	Oriental Fruit Moth	Plum Curculio	Native Stink Bugs	Tarnished Plant Bug	Thrips	
Product and Formulation	**Product Efficacy Rating[1] and Rate/A[2]**							**REI PHI**
Actara 25WG (oz)	++++ 4.0	–	–	+++ 5.5	+++ 5.5	+++ 5.5	–	12 h 14 d
Admire Pro[3] (fl oz)	++++ 1.4-2.8	–	–	–	–	+ 1.4-2.8	–	12 h 0 d
Altacor (oz)	–	++++ 3.0-4.5	++++ 3.0-4.5	–	–	–	–	4 h 10 d
Ambush 25W[3] (oz)	+ 6.4-19.2	++++ 6.4-19.2	++++ 6.4-19.2	+++ 6.4-19.2	++ 6.4-19.2	++ 6.4-19.2	–	12 h 14 d
Apta/Bexar (fl oz)	+++ 17.0-27.0	++ 21.0-27.0	–	+++ 21.0-27.0	S 21.0-27.0	S 21.0-27.0	S 21.0-27.0	12 h 14 d
Asana XL[3] (fl oz)	+ 10.0-14.0	++++ 4.8-8.0	++++ 4.8-8.0	++ 10.0-14.0	+++ 6.0-14.0	+++ 4.8-8.0	–	12 h 14 d
Assail 30SG (oz)	++++ 2.5-5.3	–	+++ 6.0-8.0	++ 6.0-8.0	+++ 6.0-8.0	+++ 6.0-8.0	–	12 h 7 d
Avaunt (oz)	–	+++ 5.0-6.0	+++ 5.0-6.0	++++ 5.0-6.0	++ 6.0	++ 5.0-6.0	–	12 h 14 d
Baythroid XL (fl oz)	+ 2.4-2.8	++++ 1.4-2.8	++++ 2.0-2.4	++ 2.4-2.8	++++ 2.0-2.4	++++ 2.0-2.4	–	12 h 7 d
Besiege (fl oz)	–	++++ 6.0-12.0	++++ 6.0-12.0	++ 9.0-12.0	+++ 9.0-12.0	+++ 6.0-12.0	–	24 h 14 d
Danitol 2.4 EC (fl oz)	–	++++ 10.6-21.3	+++ 10.6-21.3	+++ 10.6-21.3	++++ 10.6-21.3	++++ 10.6-21.3	–	24 h 3 d
Delegate 25WG (oz)	–	++++ 4.5-7.0	++++ 6.0-7.0	+ 6.0-7.0	–	–	+++ 4.5-7.0	4 h 1 d
Entrust SC (fl oz)	–	++++ 4.0-8.0	+++ 8.0	–	–	–	++++ 4.0-8.0	4 h 1 d
Imidan 70W[7] (lb)	+ 2.5-3.0	+++ 2.5-3.0	+++ 2.5-3.0	++++ 2.5-3.0	+++ 2.5-3.0	+++ 2.5-3.0	+ 2.5-3.0	4/14 d[7] 14 d
Lambda-Cy (fl oz)	+ 2.56-5.12	++++ 2.56-5.12	++++ 2.56-5.12	++ 2.56 -5.12	+++ 2.56-5.12	+++ 2.56-5.12	–	24 h 14 d
Lannate LV[4] (pt)	+++ 3.0	+++ 3.0	+++ 3.0	++ 3.0	++++ 3.0	++++ 3.0	+++ 3.0	96 h 4 d
Lannate SP[5,6] (lb)	+++ 0.5-1.0	+++ 0.5-1.0	+++ 0.5-1.0	++ 0.5-1.0	++++ 0.5-1.0	++++ 0.5-1.0	+++ 0.5-1.0	72/96 h[5] 1/4 d[6]
Leverage 360 (fl oz)	++++ 2.4-2.8	++++ 2.4-2.8	++++ 2.4-2.8	++ 2.4-2.8	++++ 2.4-2.8	++++ 2.4-2.8	++ 2.4-2.8	12 h 7 d
Madex HP (fl oz)	–	–	++++ 0.5-3.0	–	–	–	–	4h 0 d
Perm-UP 3.2EC[3] (fl oz)	+ 4.0-10.0	++++ 4.0-10.0	++++ 4.0-10.0	++ 4.0-10.0	++ 4.0-10.0	++ 4.0-10.0	–	12 h 14 d
Pounce 25WP[3] (oz)	+ 6.4-16.0	++++ 6.4-16.0	++++ 6.4-16.0	++ 6.4-16.0	++ 6.4-16.0	++ 6.4-16.0	–	12 h 14 d
Voliam Flexi WG (oz)	++++ 4.0-7.0	–	++++ 4.0-7.0	+++ 6.0-7.0	+++ 6.0-7.0	+++ 6.0-7.0	–	12 h 14 d
Warrior II (fl oz)	+ 1.28-2.56	++++ 1.28-2.56	++++ 1.28-2.56	++ 1.28--2.56	+++ 1.28-2.56	+++ 1.28-2.56	–	24 h 14 d

[1] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated. [2] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval. [3] When noted, generic products are available. [4] Lannate LV is not registered for nectarines. [5] Lannate SP REI: 72 h for nectarine, 96 h for peach. [6] Lannate SP PHI: 1 d for nectarine, 4 d for peach. [7] Imidan REI 4 d for farm labor, but 14 d for u-pick operations.

SHUCK-SPLIT			PEACHES AND NECTARINES		
DISEASE	**Bacterial Spot**	**Rusty Spot[1]**	**Scab**		
Product and Formulation[2]	**Product Efficacy Rating[3] and Rate/A[4]**				**REI PHI**
Abound 2F (fl oz)	–	++ 12.0-15.5	+++ 12.0-15.5		4 h 0 d
Bravo Weather Stik 6F[5] (pt)	–	–	+++ 3.0-4.0		12 h SS[7]
Captan 80WDG[5] (lb)	–	–	+++ 2.5-3.75		24 h 0 d
Cevya 3.34SC (fl oz)	–	+++ 4.0-5.0	–		12 h 0 d
Fontelis 1.67SC (fl oz)	–	++ 14.0-20.0	++ 14.0-20.0		12 h 0 d
Flint Extra 4.05SC (fl oz)	–	+++ 2.5-3.8	+++ 2.5-3.8		12 h 1 d
Inspire Super 2.82EW (fl oz)	–	+++ 16.0-20.0	+++ 16.0-20.0		12 h 2 d
Kaligreen 82SP[1,5] (lb)	–	+++ 2.5-3.0	–		4 h 1 d
Kocide 3000 30DF[5] (oz)	+++ 1.0-1.7	–	–		24 h 0 d
Luna Experience 3.34SC (fl oz)	–	++ 6.0-10.0	+ 6.0-10.0		12 h 0 d
Luna Sensation 4.2SC (fl oz)	–	+++ 5.0-7.6	+++ 5.0-7.6		12 h 1 d
Merivon 4.18SC (fl oz)	–	++ 4.0-6.7	++ 4.0-6.7		12 h 0 d
Mycoshield 17WP[5] (lb)	+++ 1.0-1.5	–	–		12 h 21 d
Pristine 38WG (oz)	–	++ 10.5-14.5	++ 10.5-14.5		12 h 0 d
Quadris Top 2.72SC (fl oz)	–	+++ 12.0-14.0	++++ 12.0-14.0		12 h 0 d
Quash 50WDG (oz)	–	+ 2.5-3.5	++ 2.5-3.5		12 h 14 d
Rally 40WSP (oz)	–	++++ 2.5-6.0	–		24 h 0 d
Rhyme 2.08SC (fl oz)	–	++++ 7.0	–		12 h 7 d
Serenade MAX 14.6WP[1] (lb)	–	+++ 1.0-3.0	–		4 h 0 d
Sulfur, actual[5, 6] (lb)	–	+ 10.0-12.0	++ 10.0-12.0		24 h NTL[7]
Topsin M WSB (lb) plus Captan 80WDG (lb)[5]	–	–	+++ 0.5-0.75 plus 1.25-2.5		48 h 1 d
Topsin M WSB (lb) plus Sulfur, actual (lb)[5,6]	–	+ 0.5-0.75 plus 6.0-12.0	++ 0.5-0.75 plus 6.0-12.0		48 h 1 d
Ziram 76DF (lb)	–	–	++ 4.5-8.0		48 h 14 d

[1] Integrated biorational rusty spot control program: see note at petal fall stage.

[2] Alternate products of different chemistry for resistance management; see Table 7.7 for details.

[3] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.

[4] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[5] Generic products and/or other formulations are available.

[6] Do not use sulfur if temperature is expected to exceed 90°F after spraying.

[7] PHI Key: NTL= No time limit (usually up to the day of harvest) - consult label, SS=No later than shuck-split.

SHUCK-SPLIT — PEACHES AND NECTARINES

See also table: Miticides for Postbloom Use. Avoid killing bees on blooming ground cover.

INSECT PEST	Green Peach Aphid	Leaf-roller	Oriental Fruit Moth	Plum Curculio	Native Stink Bugs	Tarnished Plant Bug	Thrips	White Peach/ San Jose Scale	
Product and Formulation[1]	**Product Efficacy Rating[2] and Rate/A[3]**								**REI PHI**
Actara 25WG (oz)	++++ 4.0	–	–	+++ 5.5	+++ 5.5	+++ 5.5	–	–	12 h 14 d
Admire Pro[1] (fl oz)	++++ 1.4-2.8	–	–	S 2.8	S 2.8	S 2.8	–	–	12 h 0 d
Altacor (oz)	–	++++ 3.0-4.5	++++ 3.0-4.5	–	–	–	–	–	4 h 10 d
Ambush 25W[1] (oz)	+ 6.4-19.2	++++ 6.4-19.2	++++ 6.4-19.2	++ 6.4-19.2	++ 6.4-19.2	++ 6.4-19.2	–	–	12 h 14 d
Apta/Bexar (fl oz)	+++ 17.0-27.0	++ 21.0-27.0	–	+++ 21.0-27.0	S 21.0-27.0	S 21.0-27.0	S 21.0-27.0	–	12 h 14 d
Asana XL[1] (fl oz)	+ 4.8-8.0	++++ 4.8-8.0	++++ 4.8-8.0	++ 10.0-14.0	+++ 6.0-14.0	+++ 4.8-8.0	–	–	12 h 14 d
Assail 30SG (oz)	++++ 2.5-5.3	–	+++ 6.0-8.0	++ 6.0-8.0	+++ 6.0-8.0	+++ 6.0-8.0	–		12 h 7 d
Avaunt (oz)	–	+++ 5.0-6.0	+++ 5.0-6.0	++++ 5.0-6.0	++ 6.0	++ 5.0-6.0	–	–	12 h 14 d
Baythroid XL (fl oz)	+ 2.4-2.8	++++ 2.4-2.8	++++ 2.0-2.4	++ 2.4-2.8	++++ 2.0-2.4	++++ 2.0-2.4	–	–	12 h 7 d
Belay[9] (fl oz)	++++ 3.0-6.0	–	–	+++ 6.0	++++ 6.0	++++ 6.0	–	–	12 h 21 d
Beleaf 50SG (oz)	+++ 2.0	–	–	–	+++ 2.8	+++ 2.0-2.8	–	–	12 h 14 d
Besiege (fl oz)	+ 6.0-12.0	++++ 6.0-12.0	++++ 6.0-12.0	++ 9.0-12.0	+++ 9.0-12.0	+++ 6.0-12.0	–	–	24 h 14 d
Centaur WDG (oz)	–	–	–	–	–	–	–	++++ 34.5	12 h 14 d
Closer SC (fl oz)	+++ 1.5-2.75	–	–	–	–	–	++ 2.75-5.75	–	12 h 7 d
Cormoran (fl oz)	++++ 20.0	+++ 20.0-28.0	++++ 20.0-28.0	+++ 20.0-28.0	+++ 20.0-28.0	+++ 20.0-28.0	–	–	12 h 8 d
Danitol 2.4 EC (fl oz)	–	++++ 10.6-21.3	+++ 10.6-21.3	++ 10.6-21.3	++++ 10.6-21.3	++++ 10.6-21.3	–	–	24 h 3 d
Delegate 25WG (oz)	–	++++ 4.5-7.0	++++ 6.0-7.0	+ 6.0-7.0	–	–	+++ 4.5-7.0	–	4 h 1 d
Entrust SC (fl oz)	–	++++ 4.0-6.0	+++ 8.0	–	–	–	++++ 6.0-8.0	–	4 h 1 d
Exirel (fl oz)	–	–	++++ 10.0-20.5	+++ 13.5-20.5	–	–	–	–	12 h 3 d
Gladiator (fl oz)	–	++ 19.0	++++ 19.0	+++ 19.0	++ 19.0	+++ 19.0	–	–	12 h 21 d
Imidan 70W[8] (lb)	+ 2.5-3.0	–	+++ 2.5-3.0	++++ 2.5-3.0	+++ 2.5-3.0	+++ 2.5-3.0	–	–	4/14 d[8] 14 d
Intrepid 2F[4] (fl oz)	–	+++ 8.0-16.0	+++ 12.0-16.0	–	–	–	–	–	4 h 7 d
Lambda-Cy (fl oz)	+ 2.56-5.12	++++ 2.56-5.12	++++ 2.56-5.12	++ 2.56-5.12	+++ 2.56-5.12	+++ 2.56-5.12	–	–	24 h 14 d

Shuck-Split INSECT PESTS - continued on next page

SHUCK-SPLIT									**PEACHES AND NECTARINES**
See also table: Miticides for Postbloom Use. Avoid killing bees on blooming ground cover.									
INSECT PEST	**Green Peach Aphid**	**Leaf-roller**	**Oriental Fruit Moth**	**Plum Curculio**	**Native Stink Bugs**	**Tarnished Plant Bug**	**Thrips**	**White Peach/ San Jose Scale**	
Lannate LV[5] (pt)	+++ 3.0	+++ 3.0	+++ 3.0	++ 3.0	++++ 3.0	++++ 3.0	+++ 3.0	–	96 h 4 d
Lannate SP[6,7] (lb)	+++ 0.5-1.0	+++ 0.5-1.0	+++ 0.5-1.0	++ 0.5-1.0	+++ 0.5-1.0	+++ 0.5-1.0	+++ 0.5-1.0	–	72/96 h[6] 1/4 d[7]
Leverage 360 (fl oz)	+++ 2.4-2.8	++++ 2.4-2.8	++++ 2.4-2.8	++ 2.4-2.8	++++ 2.4-2.8	++++ 2.4-2.8	–	–	12 h 7 d
Madex HP (fl oz)	–	–	++++ 0.5-3.0	–	–	–	–	–	4 h 0 d
Movento (fl oz)	++++ 6.0-9.0	–	–	–	–	–	–	++++ 6.0-9.0	24 h 7 d
Perm-UP 3.2EC[1] (fl oz)	+ 4.0-10.0	++++ 4.0-10.0	++++ 4.0-10.0	++ 4.0-10.0	++ 4.0-10.0	++ 4.0-10.0	–	–	12 h 14 d
Pounce 25WP[1] (oz)	+ 6.4-16.0	++++ 6.4-16.0	++++ 6.4-16.0	++ 6.4-16.0	++ 6.4-16.0	++ 6.4-16.0	–	–	12 h 14 d
Verdepryn 100SL (fl oz)	–	++++ 5.5-11.0	++++ 5.5-11.0	+++ 5.5-11.0	+ 5.5-11.0	+ 5.5-11.0	–	–	4 h 7 d
Versys (fl oz)	++++ 1.5	–	–	–	–	–	–	–	12 h 7 d
Voliam Flexi WG (oz)	++++ 4.0-7.0	++++ 4.0-7.0	++++ 4.0-7.0	+++ 6.0-7.0	+++ 6.0-7.0	+++ 6.0-7.0	–	–	12 h 14 d
Warrior II[1] (fl oz)	+ 1.28-2.56	++++ 1.28-2.56	++++ 1.28-2.56	++ 1.28-2.56	+++ 1.28-2.56	+++ 1.28-2.56	–		24 h 14 d

1 When noted, generic products are available.

[2] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated, S = suppression.

[3] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[4] Apply before egg hatch.

[5] Lannate LV is not registered for nectarines.

[6] Lannate SP 72 h REI for nectarine, 96 h for peach.

[7] Lannate SP 1 d PHI for nectarine, 4 d for peach.

[8] Imidan REI 4 d for farm labor, but 14 d for u-pick operations.

[9] Belay is not labeled for nectarines.

FIRST COVER			PEACHES AND NECTARINES		
DISEASE	**Bacterial Spot**	**Rusty Spot[1]**	**Scab**		
Product and Formulation[2]	**Product Efficacy Rating[3] and Rate/A[4]**				**REI PHI**
Abound 2F (fl oz)	–	++ 12.0-15.5	+++ 12.0-15.5		4 h 0 d
Captan 80WDG[5] (lb)	–	–	+++ 2.5-3.75		24 h 0 d
Cevya 3.34SC (fl oz)	–	+++ 4.0-5.0	–		12 h 0 d
Flint Extra 4.05SC (fl oz)	–	+++ 2.5-3.8	+++ 2.5-3.8		12 h 1 d
Fontelis 1.67SC (fl oz)	–	++ 14.0-20.0	++ 14.0-20.0		12 h 0 d
Inspire Super 2.82EW (fl oz)	–	+++ 16.0-20.0	+++ 16.0-20.0		12 h 2 d
Kocide 3000 30DF[5] (oz)	+++ 1.0-1.7	–	–		24 h 0 d
Luna Experience 3.34SC (fl oz)	–	++ 6.0-10.0	+ 6.0-10.0		12 h 0 d
Luna Sensation 4.2SC (fl oz)	–	+++ 5.0-7.6	+++ 5.0-7.6		12 h 1 d
Merivon 4.18SC (fl oz)	–	++ 4.0-6.7	++ 4.0-6.7		12 h 0 d
Mycoshield 17WP[5] (lb)	+++ 1.0-1.5	–	–		12 h 21 d
Pristine 38WG (oz)	–	++ 10.5- 14.5	++ 10.5-14.5		12 h 0 d
Quadris Top 2.72SC (fl oz)	–	+++ 12.0-14.0	++++ 12.0-14.0		12 h 0 d
Quash 50WDG (oz)	–	+ 2.5-3.5	++ 2.5-3.5		12 h 14 d
Rally 40WSP[1] (oz)	–	++++ 2.5-6.0	–		24 h 0 d
Rhyme 2.08SC (fl oz)	–	++++ 7.0	–		12 h 7 d
Sulfur, actual[5,6] (lb)	–	+ 10.0-12.0	++ 10.0-12.0		24 h NTL[7]
Topsin M WSB (lb) plus Captan 80WDG (lb)[5]	–	–	+++ 0.5-0.75 plus 2.5		48 h 1 d
Topsin M WSB (lb) plus Sulfur, actual (lb)[5,6]	–	+ 0.5-0.75 plus 6.0-12.0	++ 0.5-0.75 plus 6.0-12.0		48 h 1 d
Ziram 76DF (lb)	–	–	++ 4.5-8.0		48 h 14 d

[1] Integrated biorational rusty spot control program: see note at petal fall stage.

[2] Alternate products of different chemistry for resistance management; see Table 7.7 for details.

[3] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.

[4] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[5] Generic products and/or other formulations are available.

[6] Do not use sulfur if temperature is expected to exceed 90°F after spraying.

[7] PHI Key: NTL= No time limit (usually up to the day of harvest) - consult label.

FIRST COVER — See also table: Miticides for Postbloom Use. Avoid killing bees on blooming ground cover.								PEACHES AND NECTARINES
INSECT PEST	**Green Peach Aphid**	**Leaf-roller**	**Oriental Fruit Moth**	**Plum Curculio**	**Brown Marmo-rated Stink Bug**	**Native Stink Bugs, Tarnished Plant Bug**	**White Peach/ San Jose Scale**	
Product and Formulation[1]	**Product Efficacy Rating[2] and Rate/A[3]**							**REI PHI**
Actara 25WG (oz)	++++ 3.0-4.0	–	–	+++ 4.5-5.5	+++ 4.5-5.5	+++ 4.5-5.5	–	12 h 14 d
Admire Pro[1] (fl oz)	++++ 1.4-2.8	–	–	S 2.8	–	+ 1.4-2.8	++ 1.4-2.8	12 h 0 d
Altacor (oz)	–	++++ 3.0-4.5	++++ 3.0-4.5	–	–	–	–	4 h 10 d
Apta/Bexar (fl oz)	+++ 17.0-27.0	++ 21.0-27.0	–	+++ 21.0-27.0	S 21.0-27.0	S 21.0-27.0	–	12 h 14 d
Ambush 25W[1] (oz)	+ 6.4-19.2	++++ 6.4-19.2	++++ 6.4-19.2	++ 6.4-19.2	++ 6.4-19.2	++ 6.4-19.2	–	12 h 14 d
Asana XL[1] (fl oz)	+ 4.8-8.0	++++ 4.8-8.0	++++ 4.8-8.0	++ 10.0-14.0	++ 14.0-14.5	+++ 10.0-14.4	–	12 h 14 d
Assail 30SG (oz)	++++ 2.5-5.3	–	+++ 6.0-8.0	++ 6.0-8.0	++ 5.3-8.0	+++ 5.3-8.0	+++ 6.0-8.0	12 h 7 d
Avaunt (oz)	–	+++ 5.0-6.0	+++ 5.0-6.0	++++ 5.0-6.0	+ 6.0	++ 5.0-6.0	–	12 h 14 d
Baythroid XL (fl oz)	+ 2.4-2.8	++++ 2.4-2.8	++++ 2.0-2.4	++ 2.4-2.8	+++ 2.4	++++ 2.0-2.4	–	12 h 7 d
Belay[12] (fl oz)	++++ 3.0-6.0	–	–	+++ 6.0	++++ 6.0	++++ 6.0	+++ 6.0	12 h 21 d
Beleaf 50SG (oz)	+++ 2.0	–	–	–	+ 2.0-2.8	+++ 2.0-2.8	–	12 h 14 d
Besiege (fl oz)	+ 6.0-12.0	++++ 6.0-12.0	++++ 6.0-12.0	++ 9.0-12.0	+++ 9.0-12.0	+++ 6.0-12.0	–	24 h 14 d
Centaur WDG (oz)	–	–	–	–	–	–	++++ 34.5	12 h 14 d
Closer SC[11] (fl oz)	++++ 1.5-2.75	–	–	–	+ 5.75	++ 2.75-5.75	++[11] 5.75	12 h 7 d
Cormoran (fl oz)	++++ 20.0	+++ 20.0-28.0	++++ 20.0-28.0	++ 20.0-28.0	++ 20.0-28	+++ 20.0-28	+++ 20.0-28	12 h 8 d
Danitol 2.4 EC (fl oz)	–	++++ 10.6-21.3	+++ 10.6-21.3	++ 10.6-21.3	++ 16-21.3	++++ 10.6-21.3	–	24 h 3 d
Delegate 25WG (oz)	–	++++ 4.5-7.0	++++ 6.0-7.0	+ 6.0-7.0	–	–	–	4 h 1 d
Diazinon 50W[9] (lb)	–	++ 2.0-3.0	+++ 3.0-4.0	+++ 3.0-4.0	+ 3.0-4.0	++ 3.0-4.0	+++ 3.0-4.0	96 h 21 d
Endigo ZC (fl oz)	++++ 5.5-6.0	++++ 5.5-6.0	++++ 5.5-6.0	++ 5.5-6.0	++++ 3.4-5.5	+++ 5.0-5.5	–	24 h 14 d
Entrust SC (fl oz)	–	++++ 4.0-8.0	+++ 4.0-8.0	–	–	–	–	4 h 1 d
Esteem 35WP (oz)	+++ 4.0-5.0	–	+++ 4.0-5.0	–	–	–	++++ 4.0-5.0	12 h 14 d
Exirel (fl oz)	–	–	++++ 10.0-20.5	+++ 13.5-20.5	–	–	–	12 h 3 d
Gladiator (fl oz)	–	++ 19.0	++++ 19.0	+++ 19.0	+++ 19.0	+++ 19.0	–	12h 21 d
Imidan 70W[10] (lb)	+ 2.5-3.0	++ 2.5-3.0	+++ 2.5-3.0	++++ 2.5-3.0	+ 2.5-3.0	+++ 2.5-3.0	+ 2.0-3.0	4/14 d[10] 14 d

First Cover INSECT PESTS - continued on next page

First Cover INSECT PESTS - continued

FIRST COVER **PEACHES AND NECTARINES**

See also table: Miticides for Postbloom Use. Avoid killing bees on blooming ground cover.

INSECT PEST	Green Peach Aphid	Leaf-roller	Oriental Fruit Moth	Plum Curculio	Brown Marmo-rated Stink Bug	Native Stink Bugs, Tarnished Plant Bug	White Peach/ San Jose Scale	REI PHI
Intrepid 2F[4] (fl oz)	–	+++ 8.0-16.0	+++ 12.0-16.0	–	–	–	–	4 h 7 d
Lambda-Cy (fl oz)	+ 2.56-5.12	++++ 2.56-5.12	++++ 2.56-5.12	++ 2.56-5.12	+++ 2.56-5.12	+++ 2.56-5.12	-	24 h 14 d
Lannate LV[5] (pt)	+++ 3.0	+++ 3.0	+++ 3.0	++ 3.0	++ 3.0	+++ 3.0	–	96 h 4 d
Lannate SP[6,7] (lb)	+++ 0.5-1.0	+++ 0.5-1.0	+++ 0.5-1.0	++ 0.5-1.0	++ 1.0	+++ 1.0	–	72/96 h[6] 1/4 d[7]
Leverage 360 (oz)	++++ 2.4-2.8	++++ 2.4-2.8	++++ 2.4-2.8	++ 2.4-2.8	+++ 2.4-2.8	++++ 2.4-2.8	++ 2.4-2.8	12 h 7 d
Madex HP (fl oz)	–	–	++++ 0.5 -3.0	–	–	–	–	4 h 0 d
Movento (fl oz)	++++ 6.0-9.0	–	–	–	–	–	++++ 9.0	24 h 7 d
Mustang Maxx (fl oz)	+ 1.28-4.0	++++ 1.28-4.0	++++ 1.28-4.0	++ 1.28-4.0	+++ 1.28-4.0	+++ 1.28-4.0	–	12 h 14 d
Perm-Up 3.2EC[1] (fl oz)	+ 4.0-10.0	++++ 4.0-10.0	++++ 4.0-10.0	++ 4.0-10.0	++ 4.0-10.0	++ 4.0-10.0	–	12 h 14 d
Pounce 25WP[1] (oz)	+ 6.4-16.0	++++ 6.4-16.0	++++ 6.4-16.0	++ 6.4-16.0	++ 6.4-16.0	++ 6.4-16.0	–	12 h 14 d
Sivanto Prime (fl oz)	–	–	–	–	–	–	++ 10.5-14.0	4 h 14 d
Venerate XC[8] (qt)	–	–	+++ 1.0-2.0	–	+++ 1.0-2.0	+++ 1.0-2.0	+++[8] 1.0-2.0	4 h 0 d
Verdepryn 100SL (fl oz)	–	++++ 5.5-11.0	++++ 5.5-11.0	+++ 5.5-11.0	+ 5.5-11.0	+ 5.5-11.0	– –	4 h 7 d
Versys (fl oz)	++++ 1.5	–	–	–	–	–		12 h 7 d
Voliam Flexi WG (oz)	+++ 4.0-7.0	++++ 4.0-7.0	++++ 4.0-7.0	+++ 6.0-7.0	+++ 4.0-7.0	+++ 6.0-7.0	–	24 h 14 d
Warrior II[1] (fl oz)	+ 1.28-2.56	++++ 1.28-2.56	++++ 1.28-2.56	++ 1.28-2.56	+++ 1.28-2.56	+++ 1.28-2.56	–	24 h 14 d

[1] When noted, generic products are available.

[2] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated, S = suppression.

[3] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[4] Apply before egg hatch.

[5] Lannate LV is not registered for nectarines.

[6] Lannate SP 72 h REI for nectarine, 96 h for peach.

[7] Lannate SP 1 d PHI for nectarine, 4 d for peach.

[8] If using Venerate to control Scale insects, make two applications 7 days apart starting a week after crawler emergence

[9] Only 2 applications allowed per year: 1) A maximum of one may be a dormant application, and 2) A maximum of one may be an in season foliar application.

[10] Imidan REI 4 d for farm labor, but 14 d for u-pick operations.

[11] Closer SC: target San Jose Scale crawler stages, it is not labeled for White Peach Scale.

[12] Belay is not labeled for nectarines.

SECOND COVER					PEACHES AND NECTARINES
DISEASE	**Bacterial Spot**	**Rusty Spot**	**Scab**		
Product and Formulation[1]	**Product Efficacy Rating[2] and Rate/A[3]**				**REI PHI**
Abound 2F (fl oz)	–	++ 12.0-15.5	+++ 12.0-15.5		4 h 0 d
Captan 80WDG[5] (lb)	–	–	+++ 2.5-3.75		24 h 0 d
Cevya 3.34SC (fl oz)	–	+++ 4.0-5.0	–		12 h 0 d
Flint Extra 4.05SC (fl oz)	–	+++ 2.5-3.8	+++ 2.5-3.8		12 h 1 d
Fontelis 1.67SC (fl oz)	–	++ 14.0-20.0	++ 14.0-20.0		12 h 0 d
Inspire Super 2.82EW (fl oz)	–	+++ 16.0-20.0	+++ 16.0-20.0		12 h 2 d
Kaligreen 82SP[4,5] (lb)	–	+++ 2.5-3.0	–		4 h 1 d
Kocide 3000 30DF[5] (oz)	+++ 1.0-1.7	–	–		24 h 0 d
Luna Experience 3.34SC (fl oz)	–	++ 6.0-10.0	+ 6.0-10.0		12 h 0 d
Luna Sensation 4.2SC (fl oz)	–	+++ 5.0-7.6	+++ 5.0-7.6		12 h 1 d
Merivon 4.18SC (fl oz)	–	++ 4.0-6.7	++ 4.0-6.7		12 h 0 d
Mycoshield 17WP[5] (lb)	+++ 1.0-1.5	–	–		12 h 21 d
Pristine 38WG (oz)	–	++ 10.5-14.5	++ 10.5-14.5		12 h 0 d
Quadris Top 2.72SC (fl oz)	–	+++ 12.0-14.0	++++ 12.0-14.0		12 h 0 d
Quash 50WDG (oz)	–	+ 2.5-3.5	++ 2.5-3.5		12 h 14 d
Rally 40WSP[4] (oz)	–	++++ 2.5-6.0	–		24 h 0 d
Rhyme 2.08SC (fl oz)	–	++++ 7.0	–		12 h 7 d
Serenade MAX 14.6WP[4] (lb)	–	+++ 1.0-3.0	–		4 h 0 d
Sulfur, actual[5,6] (lb)	–	+ 10.0-12.0	++ 10.0-12.0		24 h NTL[7]
Topsin M WSB (lb) plus Captan 80WDG (lb)[5]	–	–	+++ 0.5-0.75 plus 1.25-2.5		48 h 1 d
Topsin M WSB (lb) plus Sulfur, actual (lb) [5,6]	–	+ 0.5-0.75 plus 6.0-12.0	++ 0.5-0.75 plus 6.0-12.0		48 h 1 d
Ziram 76DF (lb)	–	–	++ 4.5-8.0		48 h 14 d

[1] Alternate products of different chemistry for resistance management; see Table 7.7 for details.

[2] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.

[3] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[4] Integrated biorational rusty spot control program: see note at petal-fall stage.

[5] Generic products and/or other formulations are available.

[6] Do not use sulfur if temperature is expected to exceed 90°F after spraying.

[7] PHI Key: NTL= No time limit (usually up to the day of harvest) - consult label.

SECOND COVER — PEACHES AND NECTARINES

See also table: Miticides for Postbloom Use. Avoid killing bees on blooming ground cover.

INSECT PEST	Leaf-roller	Oriental Fruit Moth	Plum Curculio	Brown Marmo-rated Stink Bug	Native Stink Bugs, Tarnished Plant Bug	White Peach/ San Jose Scale		
Product and Formulation[1]	**Product Efficacy Rating[2] and Rate/A[3]**							**REI PHI**
Actara 25WG (oz)	–	–	+++ 4.5-5.5	+++ 4.5-5.5	+++ 4.5-5.5	–		12 h 14 d
Admire Pro[1] (fl oz)	–	–	S 2.8	–	+ 1.4-2.8	++ 1.4-2.8		12 h 0 d
Altacor (oz)	++++ 3.0-4.5	++++ 3.0-4.5	–	–	–	–		4 h 10 d
Ambush 25W[1] (oz)	++++ 6.4-19.2	++++ 6.4-19.2	++ 6.4-19.2	++ 6.4-19.2	++ 6.4-19.2	–		12 h 14 d
Apta/Bexar (fl oz)	++ 21.0-27.0	–	+++ 21.0-27.0	S 21.0-27.0	S 21.0-27.0	–		12 h 14 d
Asana XL[1] (fl oz)	++++ 4.8-8.0	++++ 4.8-8.0	++ 10.0-14.0	++ 14.0-14.5	+++ 10.0-14.4	–		12 h 14 d
Assail 30SG (oz)	–	+++ 6.0-8.0	++ 6.0-8.0	++ 5.3-8.0	+++ 5.3-8.0	+++ 6.0-8.0		12 h 7 d
Avaunt (oz)	+++ 5.0-6.0	+++ 5.0-6.0	++++ 5.0-6.0	+ 6.0	++ 5.0-6.0	–		12 h 14 d
Baythroid XL (fl oz)	++++ 2.4-2.8	++++ 2.0-2.4	++ 2.4-2.8	+++ 2.4	++++ 2.0-2.4	–		12 h 7 d
Belay[12] (fl oz)	–	–	+++ 6.0	++++ 6.0	++++ 6.0	+++ 6.0		12 h 21 d
Beleaf 50SG (oz)	–	–	–	+ 2.0-2.8	+++ 2.0-2.8	–		12 h 14 d
Besiege (fl oz)	++++ 6.0-12.0	++++ 6.0-12.0	++ 9.0-12.0	+++ 9.0-12.0	+++ 6.0-12.0	–		24 h 14 d
Centaur WDG (oz)	–	–	–	–	–	++++ 34.5		12 h 14 d
Closer SC[11] (fl oz)	–	–	–	+ 5.75	++ 2.75-5.75	++[11] 5.75		12 h 7 d
Cormoran (fl oz)	+++ 20.0-28.0	++++ 20.0-28.0	++ 20.0-28.0	++ 20.0-28	+++ 20.0-28	+++ 20.0-28		12 h 8 d
Danitol 2.4 EC (fl oz)	++++ 10.6-21.3	+++ 10.6-21.3	++ 10.6-21.3	++ 16-21.3	++++ 10.6-21.3	–		24 h 3 d
Delegate 25WG (oz)	++++ 4.5-7.0	++++ 6.0-7.0	+ 6.0-7.0	–	–	–		4 h 1 d
Diazinon 50W[9] (lb)	++ 2.0-3.0	+++ 3.0-4.0	+++ 3.0-4.0	–	++ 3.0-4.0	+++ 3.0-4.0		96 h 21 d
Endigo ZC (fl oz)	++++ 5.5-6.0	++++ 5.5-6.0	++ 5.5-6.0	++++ 3.4-5.5	+++ 5.0-5.5	–		24 h 14 d
Entrust SC (fl oz)	++++ 4.0-8.0	+++ 4.0-8.0	–	–	–	–		4 h 1 day
Esteem 35WP (oz)	–	+++ 4.0-5.0	–	–	–	++++ 4.0-5.0		12 h 14 d
Exirel (fl oz)	–	++++ 10.0-20.5	+++ 13.5-20.5	–	–	–		12 h 3 d
Gladiator (fl oz)	++ 19.0	++++ 19.0	+++ 19.0	+++ 19.0	+++ 19.0	–		12 h 21 d
Imidan 70W[10] (lb)	++ 2.5-3.0	+++ 2.5-3.0	++++ 2.5-3.0	+ 2.5-3.0	+++ 2.5-3.0	+ 2.0-3.0		4/14 d[10] 14 d

Second Cover INSECT PESTS - continued on next page

Second Cover INSECT PESTS - continued

SECOND COVER **PEACHES AND NECTARINES** **See also table: Miticides for Postbloom Use. Avoid killing bees on blooming ground cover.**								
INSECT PEST	**Leaf-roller**	**Oriental Fruit Moth**	**Plum Curculio**	**Brown Marmo-rated Stink Bug**	**Native Stink Bugs, Tarnished Plant Bug**	**White Peach/ San Jose Scale**		
Intrepid 2F[4] **(fl oz)**	++++ 8.0-16.0	+++ 12.0-16.0	–	–	–	–		4 h 7 d
Lambda-Cy **(fl oz)**	++++ 2.56-5.12	++++ 2.56-5.12	++ 2.56-5.12	+++ 2.56-5.12	+++ 2.56-5.12	–		24 h 14 d
Lannate LV[5] **(pt)**	+++ 3.0	+++ 3.0	++ 3.0	++ 3.0	+++ 3.0	–		96 h 4 d
Lannate SP[6,7] **(lb)**	+++ 0.5-1.0	+++ 0.5-1.0	++ 0.5-1.0	++ 1.0	+++ 1.0	–		72/96 h[6] 1/4 d[7]
Leverage 360 **(oz)**	++++ 2.4-2.8	++++ 2.4-2.8	++ 2.4-2.8	+++ 2.4-2.8	++++ 2.4-2.8	++ 2.4-2.8		12 h 7 d
Madex HP **(fl oz)**	–	++++ 0.5-3.0	–	–	–	–		4 h 0 d
Movento **(fl oz)**	–	–	–	–	–	++++ 9.0		24 h 7 d
Mustang Maxx **(fl oz)**	++++ 1.28-4.0	++++ 1.28-4.0	++ 1.28-4.0	+++ 1.28-4.0	+++ 1.28-4.0	–		12 h 14 d
Perm-Up 3.2EC[1] **(fl oz)**	++++ 4.0-10.0	++++ 4.0-10.0	++ 4.0-10.0	++ 4.0-10.0	++ 4.0-10.0	–		12 h 14 d
Pounce 25WP[1] **(oz)**	++++ 6.4-16.0	++++ 6.4-16.0	++ 6.4-16.0	++ 6.4-16.0	++ 6.4-16.0	–		12 h 14 d
Sivanto Prime **(fl oz)**	–	–	–	–	–	++ 10.5-14.0		4 h 14 d
Venerate XC[8] **(qt)**	–	+++ 1.0-2.0		+++ 1.0-2.0	+++ 1.0-2.0	+++[8] 1.0-2.0		4 h 0 d
Verdepryn 100SL **(fl oz)**	++++ 5.5-11.0	++++ 5.5-11.0	+++ 5.5-11.0	+ 5.5-11.0	+ 5.5-11.0	–		4 h 7 d
Voliam Flexi WG **(oz)**	++++ 4.0-7.0	++++ 4.0-7.0	+++ 6.0-7.0	+++ 4.0-7.0	+++ 6.0-7.0	–		24 h 14 d
Warrior II[1] **(fl oz)**	++++ 1.28-2.56	++++ 1.28-2.56	++ 1.28-2.56	+++ 1.28-2.56	+++ 1.28-2.56	–		24 h 14 d

[1] When noted, generic products are available.

[2] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.

[3] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[4] Apply before egg hatch.

[5] Lannate LV is not registered for nectarines.

[6] Lannate SP 72 h REI for nectarine, 96 h for peach.

[7] Lannate SP 1 d PHI for nectarine, 4 d for peach.

[8] If using Venerate to control Scale insects, make 2 applications 7 d apart starting a week after crawler emergence.

[9] Only 2 applications allowed per year: 1) A maximum of one may be a dormant application, and 2) A maximum of one may be an in season foliar application.

[10] Imidan REI 4 d for farm labor, but 14 d for u-pick operations.

[11] Closer SC: target San Jose Scale crawler stages, it is not labeled for White Peach Scale.

[12] Belay is not labeled for nectarines.

THIRD AND FOURTH COVERS					PEACHES AND NECTARINES
DISEASE	**Bacterial Spot**	**Scab[1]**	**Rusty Spot[8]**		
Product and Formulation[2]	**Product Efficacy Rating[3] and Rate/A[4]**				**REI PHI**
Abound 2F (fl oz)	–	+++ 12.0-15.5	+++ 12.0 – 15.5		4 h 0 d
Captan 80WDG[5] (lb)	–	+++ 2.5-3.75	–		24 h 0 d
Flint Extra 4.05SC (fl oz)	–	+++ 2.5-3.8	+++ 2.5-3.8		12 h 1 d
Fontelis 1.67SC (fl oz)	–	++ 14.0-20.0	++ 14.0-20.0		12 h 0 d
Inspire Super 2.82EW (fl oz)	–	+++ 16.0-20.0	+++ 16.0-20.0		12 h 2 d
Kocide 3000 30DF[5] (oz)	+++ 1.0-1.7	– -	–		24 h 0 d
Luna Experience 3.34SC (fl oz)	–	+ 6.0-10.0	++ 6.0-10.0		12 h 0 d
Luna Sensation 4.2SC (fl oz)	–	+++ 5.0-7.6	+++ 5.0-7.6		12 h 1 d
Merivon 4.18SC (fl oz)	–	++ 4.0-6.7	++ 4.0-6.7		12 h 0 d
Mycoshield 17WP[5] (lb)	+++ 1.0-1.5	–	–		12 h 21 d
Pristine 38WG (oz)	–	++ 10.5-14.5	++ 10.5-14.5		12 h 0 d
Quadris Top 2.72SC (fl oz)	–	++++ 12.0-14.0	+++ 12.0-14.0		12 h 0 d
Quash 50WDG (oz)	+ 2.5-3.5	++ 2.5-3.5	+ 2.5-3.5		12 h 14 d
Rally 40WSP (oz)	–	–	++++ 2.5-6.0		24 h 0 d
Rhyme 2.08SC (fl oz)	–	–	++++ 7.0		12 h 7 d
Sulfur, actual[5,6] (lb)	–	++ 10.0-12.0	+ 10.0-12.0		24 h NTL[7]
Topsin M WSB (lb) plus Captan 80WDG (lb)[5]	–	+++ 0.5-0.75 plus 1.25-2.5	–		48 h 1 d
Topsin M WSB (lb) plus Sulfur, actual (lb)[5,6]	–	++ 0.5-0.75 plus 6.0-12.0	+ 0.5-0.75 plus 6.0-12.0		48 h 1 d
Ziram 76DF (lb)	–	++ 4.5-8.0	–		48 h 14 d

[1] Continue scab control if much scab occurred in the previous year or weather remains wet.[2] Alternate products of different chemistry for resistance management; see Table 7.7 for details.

[3] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.

[4] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[5] Generic products and/or other formulations are available.

[6] Do not use sulfur if temperature is expected to exceed 90°F after spraying.

[7] PHI Key: NTL= No time limit (usually up to the day of harvest) - consult label.

[8] Rusty spot is controlled with sprays from PF-2C; in early warm seasons, a 3C spray is advised for susceptible cultivars

THIRD AND FOURTH COVERS — PEACHES AND NECTARINES

See also table: Miticides for Postbloom Use. Avoid killing bees on blooming ground cover.

INSECT PEST	Japanese/ June Beetle	Leafrollers	Oriental Fruit Moth	Plum Curculio	Brown Marmo-rated Stink Bug	Native Stink Bugs, Tarnished Plant Bug	White Peach/ San Jose Scale	
Product and Formulation[1]	**Product Efficacy Rating[2] and Rate/A[3]**							**REI PHI**
Actara 25WG (oz)	+ 5.5	–	–	+++ 4.5-5.5	+++ 4.5-5.5	+++ 4.5-5.5	–	12 h 14 d
Admire Pro[1] (fl oz)	+++ 1.4-2.8	–	–	S 2.8	–	+ 1.4-2.8	+++ 1.4-2.8	12 h 0 d
Altacor (oz)	–	++++ 3.0-4.5	++++ 3.0-4.5	–	–	–	–	4 h 10 d
Ambush 25W[1] (oz)	+++ 6.4-19.2	++++ 6.4-19.2	++++ 6.4-19.2	++ 6.4-19.2	++ 6.4-19.2	++ 6.4-19.2	–	12 h 14 d
Apta/Bexar (fl oz)	–	++ 21.0-27.0	–	+++ 21.0-27.0	S 21.0-27.0	S 21.0-27.0	–	12 h 14 d
Asana XL[1] (fl oz)	+++ 6.0-10.0	++++ 4.8-8.0	++++ 4.8-8.0	++ 10.0-14.0	++ 14.0-14.5	+++ 10.0-14.4	–	12 h 14 d
Assail 30SG (oz)	+++ 5.3-8.0	–	+++ 6.0-8.0	++ 6.0-8.0	++ 5.3-8.0	+++ 5.3-8.0	+++ 6.0-8.0	12 h 7 d
Avaunt (oz)	+++ 6.0	+++ 5.0-6.0	+++ 5.0-6.0	++++ 5.0-6.0	+ 6.0	++ 5.0-6.0	–	12 h 14 d
Baythroid XL (fl oz)	+++ 2.4-2.8	++++ 2.4-2.8	++++ 2.0-2.4	++ 2.4-2.8	+++ 2.4	++++ 2.0-2.4	–	12 h 7 d
Belay[12] (fl oz)	+++ 2.0-4.0	–	–	+++ 6.0	++++ 6.0	+++ 6.0	+++ 6.0	12 h 21 d
Beleaf 50SG (oz)	–	–	–	–	+ 2.0-2.8	+++ 2.0-2.8	–	12 h 14 d
Besiege (fl oz)	+++ 6.0-12.0	++++ 6.0-12.0	++++ 6.0-12.0	++ 9.0-12.0	+++ 9.0-12.0	+++ 6.0-12.0	–	24 h 14 d
Centaur WDG (oz)	–	–	–	–	–	–	++++ 34.5	12 h 14 d
Closer SC[11] (fl oz)	–	–	–	–	+ 5.75	++ 2.75-5.75	++[11] 5.75	12 h 7 d
Cormoran (fl oz)	++ 20.0-28.0	+++ 20.0-28.0	++++ 20.0-28.0	++ 20.0-28.0	++ 20.0-28.0	+++ 20.0-28.0	+++ 20.0-28.0	12 h 8 d
Danitol 2.4 EC (fl oz)	+++ 10.6-21.3	++++ 10.6-21.3	+++ 10.6-21.3	++ 10.6-21.3	++ 16-21.3	++++ 10.6-21.3	–	24 h 3 d
Delegate 25WG (oz)	–	++++ 4.5-7.0	++++ 6.0-7.0	+ 6.0-7.0	–	–	–	4 h 1 d
Diazinon 50W[9] (lb)	+++ 3.0-4.0	++ 2.0-3.0	+++ 3.0-4.0	+++ 3.0-4.0		++ 3.0-4.0	+++ 3.0-4.0	96 h 21 d
Endigo ZC (fl oz)	+++ 5.5-6.0	++++ 5.5-6.0	++++ 5.5-6.0	++ 5.5-6.0	++++ 3.4-5.5	+++ 5.0-5.5	–	24 h 14 d
Entrust SC (fl oz)	–	++++ 4.0-8.0	+++ 4.0-8.0	–	–	–	–	4 h 1 d
Esteem 35WP (oz)	–	–	+++ 4.0-5.0	–	–	–	++++ 4.0-5.0	12 h 14 d
Exirel (fl oz)	–	–	++++ 10.0-20.5	+++ 13.5-20.5	–	–	–	12 h 3 d
Gadiator (fl oz)	–	++ 19.0	++++ 19.0	+++ 19.0	+++ 19.0	+++ 19.0	–	12 h 21 d
Imidan 70W[10] (lb)	+++ 2.0-3.0	++ 2.5-3.0	+++ 2.5-3.0	++++ 2.5-3.0	+ 2.5-3.0	+++ 2.5-3.0	+ 2.0-3.0	4/14 d[10] 14 d

Third and Fourth Covers INSECT PESTS - continued on next page

Third and Fourth Covers INSECT PESTS - continued

THIRD AND FOURTH COVERS — PEACHES AND NECTARINES See also table: Miticides for Postbloom Use. Avoid killing bees on blooming ground cover.								
INSECT PEST	**Japanese/ June Beetle**	**Leafrollers**	**Oriental Fruit Moth**	**Plum Curculio**	**Brown Marmo-rated Stink Bug**	**Native Stink Bugs, Tarnished Plant Bug**	**White Peach/ San Jose Scale**	**REI PHI**
Intrepid 2F[4] **(fl oz)**	– 	++++ 8.0-16.0	+++ 12.0-16.0	– 	– 	– 	– 	4 h 7 d
Lambda-Cy **(fl oz)**	+++ 2.56-5.12	++++ 2.56-5.12	++++ 2.56-5.12	++ 2.56-5.12	+++ 2.56-5.12	+++ 2.56-5.12	– 	24 h 14 d
Lannate LV[5] **(pt)**	+++ 3.0	+++ 3.0	+++ 3.0	++ 3.0	++ 3.0	+++ 3.0	– 	96 h 4 d
Lannate SP[6,7] **(lb)**	+++ 0.5-1.0	+++ 0.5-1.0	+++ 0.5-1.0	++ 0.5-1.0	++ 1.0	+++ 1.0	– 	72/96 h[6] 1/4 d[7]
Leverage 360 **(oz)**	+++ 2.4-2.8	++++ 2.4-2.8	++++ 2.4-2.8	++ 2.4-2.8	+++ 2.4-2.8	++++ 2.4-2.8	++ 2.4-2.8	12 h 7 d
Madex HP **(fl oz)**	– 	– 	++++ 0.5-3.0	– 	– 	– 	– 	4 h 0 d
Movento **(fl oz)**	– 	– 	– 	– 	– 	– 	++++ 9.0	24 h 7 d
Mustang Maxx **(fl oz)**	++++ 1.28-4.0	+++ 1.28-4.0	++++ 1.28-4.0	++ 1.28-4.0	+++ 1.28-4.0	+++ 1.28-4.0	– 	12 h 14 d
Perm-Up 3.2EC[1] **(fl oz)**	+++ 4.0-10.0	++++ 4.0-10.0	++++ 4.0-10.0	++ 4.0-10.0	++ 4.0-10.0	++ 4.0-10.0	– 	12 h 14 d
Pounce 25WP[1] **(oz)**	+++ 6.4-16.0	++++ 6.4-16.0	++++ 6.4-16.0	++ 6.4-16.0	++ 6.4-16.0	++ 6.4-16.0	– 	12 h 14 d
Sevin XLR Plus **(qt)**	++++ 2.0-3.0	– 	+++ 2.0-3.0	++ 2.0-3.0	– 	– 	– 	12 h 3 d
Sivanto Prime **(fl oz)**	– 	– 	– 	– 	– 	– 	++ 10.5-14.0	4 h 14 d
Venerate XC[8] **(qt)**	– 	– 	+++ 1.0-2.0	– 	+++ 1.0-2.0	+++ 1.0-2.0	+++[8] 1.0-2.0	4 h 0 d
Verdepryn 100SL **(fl oz)**	+++ 5.5-11.0	++++ 5.5-11.0	++++ 5.5-11.0	+++ 5.5-11.0	+ 5.5-11.0	+ 5.5-11.0	– 	4 h 7 d
Voliam Flexi WG **(oz)**	– 	++++ 4.0-7.0	++++ 4.0-7.0	+++ 6.0-7.0	+++ 4.0-7.0	+++ 6.0-7.0	– 	24 h 14 d
Warrior II[1] **(fl oz)**	+++ 1.28-2.56	++++ 1.28-2.56	++++ 1.28-2.56	++ 1.28-2.56	+++ 1.28-2.56	+++ 1.28-2.56	– 	24 h 14 d

[1] When noted, generic products are available.

[2] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.

[3] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[4] Apply before egg hatch.

[5] Lannate LV is not registered for nectarines.

[6] Lannate SP 72 h REI for nectarine, 96 h for peach.

[7] Lannate SP 1 d PHI for nectarine, 4 d for peach.

[8] If using Venerate to control Scale insects, make 2 applications 7 d apart starting a week after crawler emergence.

[9] Only 2 applications allowed per year: 1) A maximum of one may be a dormant application, and 2) A maximum of one may be an in season foliar application.

[10] Imidan REI 4 d for farm labor, but 14 d for u-pick operations.

[11] Closer SC: target San Jose Scale crawler stages, it is not labeled for White Peach Scale.

[12] Belay is not labeled for nectarines.

FIFTH, SIXTH AND LATER COVERS					PEACHES AND NECTARINES
DISEASE	**Anthracnose[1]**	**Bacterial Spot**	**Scab[2]**		
Product and Formulation[3]	**Product Efficacy Rating[4] and Rate/A[5]**				**REI PHI**
Abound 2F (fl oz)	–	–	+++ 12.0-15.5		4 h 0 d
Captan 80WDG[6] (lb)	+++ 2.5	–	+++ 2.5-3.75		24 h 0 d
Flint Extra 4.05SC (fl oz)	–	–	+++ 2.5-3.8		12 h 1 d
Fontelis 1.67SC (fl oz)	–	–	++ 14.0-20.0		12 h 0 d
Inspire Super 2.82EW (fl oz)	–	–	+++ 16.0-20.0		12 h 2 d
Kocide 3000 30DF[6] (oz)	–	+++ 1.0-1.7	–		24 h 0 d
Luna Experience 3.34SC (fl oz)	–	–	+ 6.0-10.0		12 h 0 d
Luna Sensation 4.2SC (fl oz)	–	–	+++ 5.0-7.6		12 h 1 d
Merivon 4.18SC (fl oz)	–	–	++ 4.0-6.7		12 h 0 d
Mycoshield 17WP[6] (lb)	–	+++ 1.0-1.5	–		12 h 21 d
Pristine 38WG (oz)	–	–	++ 10.5-14.5		12 h 0 d
Quadris Top 2.72SC (fl oz)	–	–	++++ 12.0-14.0		12 h 0 d
Quash 50WDG (oz)	–	–	++ 2.5-3.5		12 h 14 d
Sulfur, actual[6,7] (lb)	–	–	++ 10.0-12.0		24 h NTL[8]
Topsin M WSB (lb) plus Captan 80WDG (lb)[6]	–	–	+++ 0.5-0.75 plus 1.25-2.5		48 h 1 d
Topsin M WSB (lb) plus Sulfur, actual (lb)[6,7]	–	–	++ 0.5-0.75 plus 6.0-12.0		48 h 1 d
Ziram 76DF (lb)	+++ 4.5-8.0	–	++ 4.5-8.0		48 h 14 d

[1] Only spray for anthracnose if disease has occurred during previous seasons.

[2] Continue scab control if more than 40 d prior to harvest.

[3] Alternate products of different chemistry for resistance management; see Table 7.7 for details.

[4] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.

[5] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[6] Generic products and/or other formulations are available.

[7] Do not use sulfur if temperature is expected to exceed 90°F after spraying.

[8] PHI Key: NTL = No time limit (usually up to the day of harvest) - consult label.

FIFTH, SIXTH AND LATER COVERS — PEACHES AND NECTARINES

See also table: Miticides for Postbloom Use. Avoid killing bees on blooming ground cover.

INSECT PEST	Japanese/ June Beetle	Leafrollers	Oriental Fruit Moth	Plum Curculio	Brown Marmo-rated Stink Bug	Native Stink Bugs, Tarnished Plant Bug	White Peach/ San Jose Scale	
Product and Formulation[1]	**Product Efficacy Rating[2] and Rate/A[3]**							**REI PHI**
Actara 25WG (oz)	+ 5.5	–	–	+++ 4.5-5.5	+++ 4.5-5.5	+++ 4.5-5.5	–	12 h 14 d
Admire Pro[1] (fl oz)	+++ 1.4-2.8	–	–	S 2.8	–	+ 1.4-2.8	++ 1.4-2.8	12 h 0 d
Altacor (oz)	–	++++ 3.0-4.5	++++ 3.0-4.5	–	–	–	–	4 h 10 d
Ambush 25W[1] (oz)	+++ 6.4-19.2	++++ 6.4-19.2	++++ 6.4-19.2	++ 6.4-19.2	++ 6.4-19.2	++ 6.4-19.2	–	12 h 14 d
Apta/Bexar (fl oz)	–	++ 21.0-27.0	–	+++ 21.0-27.0	S 21.0-27.0	S 21.0-27.0	–	12 h 14 d
Asana XL[1] (fl oz)	+++ 6.0-10.0	++++ 4.8-8.0	++++ 4.8-8.0	++ 10.0-14.0	++ 14.0-14.5	+++ 10.0-14.4	–	12 h 14 d
Assail 30SG (oz)	+++ 5.3-8.0	–	+++ 6.0-8.0	++ 6.0-8.0	++ 5.3-8.0	+++ 5.3-8.0	+++ 6.0-8.0	12 h 7 d
Avaunt (oz)	+++ 6.0	+++ 5.0-6.0	+++ 5.0-6.0	++++ 5.0-6.0	+ 6.0	++ 5.0-6.0	–	12 h 14 d
Baythroid XL (fl oz)	+++ 2.4-2.8	++++ 2.4-2.8	++++ 2.0-2.4	++ 2.4-2.8	+++ 2.4	++++ 2.0-2.4	–	12 h 7 d
Belay[12] (fl oz)	–	–	–	+++ 6.0	++++ 6.0	+++ 6.0	+++ 6.0	12 h 21 d
Beleaf 50SG (oz)	–	–	–	–	+ 2.0-2.8	+++ 2.0-2.8	–	12 h 14 d
Besiege (fl oz)	+++ 6.0-12.0	++++ 6.0-12.0	++++ 6.0-12.0	++ 9.0-12.0	+++ 9.0-12.0	+++ 6.0-12.0	–	24 h 14 d
Centaur WDG (oz)	–	–	–	–	–	–	++++ 34.5	12 h 14 d
Closer SC[11] (fl oz)	–	–	–	–	+ 5.75	++ 2.75-5.75	++[11] 5.75	12 h 7 d
Cormoran (fl oz)	++ 20.0-28.0	+++ 20.0-28.0	++++ 20.0-28.0	++ 20.0-28.0	++ 20.0-28.0	+++ 20.0-28.0	+++ 20.0-28.0	12 h 8 d
Danitol 2.4 EC (fl oz)	–	++++ 10.6-21.3	+++ 10.6-21.3	++ 10.6-21.3	++ 16-21.3	++++ 10.6-21.3	–	24 h 3 d
Delegate 25WG (oz)	–	++++ 4.5-7.0	++++ 6.0-7.0	+ 6.0-7.0	–	–	–	4 h 1 d
Diazinon 50W[9] (lb)	+++ 3.0-4.0	++ 2.0-3.0	+++ 3.0-4.0	+++ 3.0-4.0	–	++ 3.0-4.0	+++ 3.0-4.0	96 h 21 d
Endigo ZC (fl oz)	+++ 5.5-6.0	++++ 5.5-6.0	++++ 5.5-6.0	++ 5.5-6.0	++++ 3.4-5.5	+++ 5.0-5.5	–	24 h 14 d
Entrust SC (fl oz)	–	++++ 4.0-8.0	+++ 4.0-8.0	–	–	–	–	4 h 1 d
Esteem 35WP (oz)	–	–	+++ 4.0-5.0	–	–	–	++++ 4.0-5.0	12 h 14 d
Exirel (fl oz)	–	–	++++ 10.0-20.5	+++ 13.5-20.5	–	–	–	12 h 3 d
Gladiator (fl oz)	–	++ 19.0	++++ 19.0	+++ 19.0	+++ 19.0	+++ 19.0	–	12 h 21 d
Imidan 70W[10] (lb)	+++ 2.0-3.0	++ 2.5-3.0	+++ 2.5-3.0	++++ 2.5-3.0	+ 2.5-3.0	+++ 2.5-3.0	+ 2.0-3.0	4/14 d[10] 14 d

Fifth, Sixth, and Later Covers INSECT PESTS - continued on next page

FIFTH, SIXTH AND LATER COVERS — PEACHES AND NECTARINES See also table: Miticides for Postbloom Use. Avoid killing bees on blooming ground cover.								
INSECT PEST	**Japanese/ June Beetle**	**Leafrollers**	**Oriental Fruit Moth**	**Plum Curculio**	**Brown Marmo-rated Stink Bug**	**Native Stink Bugs, Tarnished Plant Bug**	**White Peach/ San Jose Scale**	**REI PHI**
Intrepid 2F[4] **(fl oz)**	– 	++++ 8.0-16.0	+++ 12.0-16.0	– 	– 	– 	– 	4 h 7 d
Lambda-Cy **(fl oz)**	+++ 2.56-5.12	++++ 2.56-5.12	++++ 2.56-5.12	++ 2.56-5.12	+++ 2.56-5.12	+++ 2.56-5.12	– 	24 h 14 d
Lannate LV[5] **(pt)**	+++ 3.0	+++ 3.0	+++ 3.0	++ 3.0	++ 3.0	+++ 3.0	– 	96 h 4 d
Lannate SP[6,7] **(lb)**	+++ 0.5-1.0	+++ 0.5-1.0	+++ 0.5-1.0	++ 0.5-1.0	++ 1.0	+++ 1.0	– 	72/96 h[6] 1/4 d[7]
Leverage 360 **(oz)**	+++ 2.4-2.8	++++ 2.4-2.8	++++ 2.4-2.8	++ 2.4-2.8	+++ 2.4-2.8	++++ 2.4-2.8	++ 2.4-2.8	12 h 7 d
Madex HP **(fl oz)**	– 	– 	++++ 0.5-3.0	– 	– 	– 	– 	4 h 0 d
Movento **(fl oz)**	– 	– 	– 	– 	– 	– 	++++ 9.0	24 h 7 d
Mustang Maxx **(fl oz)**	+++ 1.28-4.0	++++ 1.28-4.0	++++ 1.28-4.0	++ 1.28-4.0	+++ 1.28-4.0	+++ 1.28-4.0	– 	12 h 14 d
Perm-Up 3.2EC[1] **(fl oz)**	+++ 4.0-10.0	++++ 4.0-10.0	++++ 4.0-10.0	++ 4.0-10.0	++ 4.0-10.0	++ 4.0-10.0	– 	12 h 14 d
Pounce 25WP[1] **(oz)**	+++ 6.4-16.0	++++ 6.4-16.0	++++ 6.4-16.0	++ 6.4-16.0	++ 6.4-16.0	++ 6.4-16.0	– 	12 h 14 d
Sevin XLR Plus **(qt)**	++++ 2.0-3.0	– 	+++ 2.0-3.0	– 	– 	– 	– 	12 h 3 d
Sivanto Prime **(fl oz)**	– 	– 	– 	– 	– 	– 	++ 10.5-14.0	4 h 14 d
Venerate XC[8] **(qt)**	– 	– 	+++ 1.0-2.0	– 	+++ 1.0-2.0	+++ 1.0-2.0	+++[8] 1.0-2.0	4 h 0 d
Verdepryn 100SL **(fl oz)**	+++ 5.5-11.0	++++ 5.5-11.0	++++ 5.5-11.0	+++ 5.5-11.0	+ 5.5-11.0	+ 5.5-11.0	– 	4 h 7 d
Voliam Flexi WG **(oz)**	– 	++++ 4.0-7.0	++++ 4.0-7.0	+++ 6.0-7.0	+++ 4.0-7.0	+++ 6.0-7.0	– 	24 h 14 d
Warrior II[1] **(fl oz)**	+++ 1.28-2.56	++++ 1.28-2.56	++++ 1.28-2.56	++ 1.28-2.56	+++ 1.28-2.56	+++ 1.28-2.56	– 	24 h 14 d

[1] When noted, generic products are available.

[2] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.

[3] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[4] Apply before egg hatch.

[5] Lannate LV is not registered for nectarines.

[6] Lannate SP 72 h REI for nectarine, 96 h for peach.

[7] Lannate SP 1 d PHI for nectarine, 4 d for peach.

[8] If using Venerate to control Scale insects, make 2 applications 7 d apart starting a week after crawler emergence. Venerate has shown efficacy as a pre-harvest treatment against BMSB in peach.

[9] Only 2 applications allowed per year: 1) A maximum of one may be a dormant application, and 2) A maximum of one may be an in season foliar application.

[10] Imidan REI 4 d for farm labor, but 14 d for u-pick operations.

[11] Closer SC: target San Jose Scale crawler stages, it is not labeled for White Peach Scale.

[12] Belay is not labeled for nectarines.

PREHARVEST					PEACHES AND NECTARINES
DISEASE	**Anthracnose[1]**	**Brown Rot Fruit Rot[2]**	**Rhizopus Rot[3]**		
Product and Formulation[4]	**Product Efficacy Rating[5] and Rate/A[6]**				**REI PHI**
Abound 2F (fl oz)	– 12.0-15.5	+++ 12.0-15.5	–		4 h 0 d
Botran 75WP (lb)	–	+ 1.33-5.33	+++ 1.5-5.0		12 h 10 d
Bumper/Tilt[7] (fl oz)	–	+++ 4.0	–		24 h 0 d
Captan 80WDG[7] (lb)	+++ 2.5	+++ 3.75	–		24 h 0 d
Cevya 3.34SC (fl oz)	–	++++ 3.0-5.0	–		12 h 0 d
Elevate 50WDG (lb)	–	++ 1.0-1.5	–		4 h 0 d
Flint Extra 4.05SC (fl oz)	–	+++ 2.5-3.8	–		12 h 1 d
Fontelis 1.67SC (fl oz)	–	+++ 14.0-20.0	+ 14.0-20.0		12 h 0 d
Indar 2F[8] (fl oz)	–	++++ 6.0-12.0	–		12 h 0 d
Inspire Super 2.82EW (fl oz)	–	+++ 16.0-20.0	–		12 h 2 d
Luna Experience 3.34SC (fl oz)	–	+++ 6.0-10.0	–		12 h 0 d
Luna Sensation 4.2SC (fl oz)	–	++++ 5.0-7.6	–		12 h 1 d
Merivon 4.18SC (fl oz)	–	++++ 4.0-6.7	+++ 4.0-6.7		12 h 0 d
Miravis 1.67SC (fl oz)	–	+++ 3.4-5.1	–		4 h 0 d
Orius AQ 1.67F (fl oz)	–	++++ 8.6-17.2	+++ 8.6-17.2		12 h 0 d
Oso 5%SC (fl oz)	–	+++ 6.5-13.0	–		4 h 0 d
Pristine 38WG (oz)	–	++++ 10.5-14.5	–		12 h 0 d
Quadris Top 2.72SC (fl oz)	–	++++ 12.0-14.0	++ 12.0-14.0		12 h 0 d
Quash 50WDG (oz)	–	++++ 3.5-4.0	–		12 h 14 d
Topguard (fl oz)	–	++ 14.0	–		12 h 7 d
Topsin M WSB (lb) plus Captan 80WDG (lb)[7]	–	+++ 0.5-0.75 plus 1.25-2.5	–		48 h 1 d

[1] Only spray for anthracnose if disease has occurred during previous seasons.

[2] A total of two-three fruit rot sprays are needed. Apply the first spray at 14-21 d preharvest and the second 7-14 d later. Apply a third spray just prior to harvest if label allows; this spray can also be applied between pickings.

[3] Typically no preharvest sprays are necessary for Rhizopus rot control. However, in very wet seasons and on later maturing cultivars, rot can become problematic. Under these conditions, higher application rates are advised.

[4] Alternate products of different chemistry for resistance management; see Table 7.7 for details.

[5] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.

[6] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[7] Generic products and/or other formulations are available.

[8] In New Jersey, an EPA 24c special local need registration allows use of Indar 2F at a maximum 12.0 fl oz/A. rate.

PREHARVEST — PEACHES AND NECTARINES See also table: Miticides for Postbloom Use. Avoid killing bees on blooming ground cover.								
INSECT PEST	**Japanese/ June Beetle**	**Oriental Fruit Moth**	**Brown Marmo-rated Stink Bug**	**Native Stink Bugs, Tarnished Plant Bug**	**Tufted Apple Bud Moth, Leafrollers**	**Thrips**	**White Peach/ San Jose Scale**	
Product and Formulation[1]	**Product Efficacy Rating[2] and Rate/A[3]**							**REI PHI**
Admire Pro (fl oz)	++++ 6.0-8.0	–	–	S 2.8	–	+++ 6.0-8.0	++ 6.0-8.0	12 h 0 d
Assail 30SG (oz)	+++ 5.3-8.0	+++ 6.0-8.0	++ 8.0	+++ 6.0-8.0	–	–	+++ 6.0-8.0	12 h 7 d
Baythroid XL (fl oz)	+++ 2.4-2.8	++++ 2.0-2.4	+++ 2.0	++++ 2.0-2.4	++++ 2.4-2.8	–	–	12 h 7 d
Cormoran (fl oz)	++ 20.0-28.0	++++ 20.0-28.0	++ 20.0-28	+++ 20.0-28	++++ 20.0-28.0	–	+++ 20.0-28	12 h 8 d
Danitol 2.4 EC (fl oz)	++++ 10.6-21.3	+++ 10.6-21.3	+++ 21.3	+++ 10.6-21.3	++++ 10.6-21.3	–	–	24 h 3 d
Delegate 25WG (oz)	–	++++ 6.0-7.0	+ 4.5-8.0	–	++++ 4.5-7.0	+++ 4.5-7.0	–	4 h 1 d
Intrepid 2F[4] (fl oz)	–	+++ 12.0-16.0	–	–	++++ 8.0-16.0	–	–	4 h 7 d
Lannate LV[5] (pt)	+++ 3.0	+++ 3.0	++++ 3.0	+++ 3.0	+++ 3.0	+++ 3.0	–	96 h 4 d
Lannate SP[6,7] (lb)	+++ 0.5-1.0	+++ 0.5-1.0	++++ 1.0	+++ 0.5-1.0	+++ 0.5-1.0	+++ 0.5-1.0	–	72/96 h[6] 1/4 d[7]
Leverage 360 (oz)	+++ 2.4-2.8	++++ 2.4-2.8	–	++++ 2.4-2.8	++++ 2.4-2.8	–	+++ 2.4-2.8	12 h 7 d
Movento (fl oz)	–	–	–	–	–	–	++++ 8.0-9.0	24 h 7 d
Sevin 80WSB (lb)	++++ 2.0-3.0	+++ 2.5-3.0	–	–	++ 2.0-3.0	–	–	12 h 3 d
Sevin XLR Plus (qt)	++++ 2.0-3.0	+++ 2.0-3.0	–	–	++ 2.0-3.0	–	–	12 h 3 d
Venerate XC[8] (qt)	–	+++ 1.0-2.0	+++[8] 1.0-2.0	+++ 1.0-2.0	+++ 1.0-2.0	–	+++[8] 1.0-2.0	4 h 0 d
Verdepryn 100SL (fl oz)	+++ 5.5-11.0	++++ 5.5-11.0	+ 5.5-11.0	+ 5.5-11.0	++++ 5.5-11.0	–	–	4 h 7 d

[1] When noted, generic products are available.

[2] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated, S = suppression.

[3] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[4] Apply before egg hatch.

[5] Lannate LV is not registered for nectarines.

[6] Lannate SP 72 h REI for nectarine, 96 h for peach.

[7] Lannate SP 1 d PHI for nectarine, 4 d for peach.

[8] If using Venerate to control Scale insects, make 2 applications 7 d apart starting a week after crawler emergence. Venerate has shown efficacy as a pre-harvest treatment against BMSB in peach.

POSTHARVEST					PEACHES AND NECTARINES
DISEASE	**Leaf Curl[1]**	**Constriction Canker[5]**			
Product and Formulation	**Product Efficacy Rating[2] and Rate/A[3]**				**REI PHI**
Bordeaux mixture (lb/100 gal)	++ 4, 6				24 h NA[5]
Bravo Weather Stik 6F[4] (pt)	++++ 3.0-4.0	++++ 3.0-4.0			12 h NA[5]
Captan 80WDG (lb)	–	+++ 3.5 – 5			24 h 0 d
Copper, fixed[4]	++ various rates				12-48 h various
Ferbam 76WDG (lb)	++++ 4.0				24 h NA[5]
Lime Sulfur 10.6F (gal)	+ 6.0-8.0				48 h NA[5]
Ziram 76DF (lb)	++++ 3.75-8.0				48 h NA[5]

[1] Apply fungicides for leaf curl control after most leaves have fallen. If no spray is applied at this time, a dormant application should be made in spring just prior to bud-break.

[2] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.

[3] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[4] Generic products and/or other formulations are available. [5] NA=not applicable

[5] Beginning mid-Sept after harvest, apply at 10-14 day intervals throughout fall until 100% leaf drop. Postharvest and dormant sprays provide about 70% control; **remove cankers during mid-late summer for greater control**. NJ 24(c) label allows fall sprays and a maximum 20.5 pt/A/year.

POSTHARVEST					PEACHES AND NECTARINES
See also table: Miticides for Postbloom Use. Avoid killing bees on blooming ground cover.					
INSECT PEST	**Lesser Peach Tree Borer**	**Peach Tree Borer[1]**			
Product and Formulation	**Product Efficacy[2] and Rate (per acre rate by handgun in minimum of 100 gal/A)**				**REI PHI**
Asana XL (fl oz/100 gal)	++ 5.8	++ 5.8			12 h 14 d
Cobalt or Cobalt Advanced (qt/100 gal)	++++ 4.7	++++ 4.7			96 h 14 d
Pounce 25WG (fl oz/100 gal)	+++ 6.4-16	+++ 6.4-16			12h 14d

[1] Apply just after harvest in early September in southern counties, slightly later in the northern part of the state.

[2] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.

MITICIDES FOR POSTBLOOM USE					PEACHES AND NECTARINES
MITE PEST	**European Red Mite**	**Peach Silver Mite**	**Two-Spotted Spider Mite**		
Product and Formulation	**Product Efficacy Rating[1] and Rate/A[2]**			**IRAC Class**	**REI PHI**
Acramite 50WS[3] (lb)	++++ 0.75-1.0	+++ 0.75-1.0	++++ 0.75-1.0	20D	12 h 3 d
Agri-Mek SC (fl oz) plus Paraffinic Spray Oil	++++ 2.25-4.25	–	++++ 2.25-4.25	6	12 h 21 d
Apollo SC[4] (oz)	++++ 2.0-8.0	++ 2.0-8.0	++++ 2.0-8.0	10A	12 h 21 d
Envidor 2SC (fl oz)	++++ 16.0-18.0	++++ 16.0-18.0	++++ 16.0-18.0	23	12 h 7 d
Nealta (fl oz)	++++ 13.7	–	++++ 13.7	25	12 h 7 d
Nexter 75WP (oz)	++++ 4.4-5.2	++ 5.2-10.67	++ 5.2-10.67	21A	12 h 7 d
Onager EC (oz)	++++ 12.0-24.0	+ 12.0-24.0	++++ 12.0-24.0	10A	12 h 28 d
Portal XLO (pt)	+++ 1.0-2.0	–	+++ 1.0-2.0	21A	12 h 7 d
Savey 50DF (oz)	++++ 3.0-6.0	–	++++ 3.0-6.0	10A	12 h 28 d
Vendex 50WP (lb)	+++ 1.0-2.0	+++ 1.0-2.0	+++ 1.0-2.0	12B	48 h 14 d
Zeal (oz)	++++ 2.0-3.0	–	++++ 2.0-3.0	10B	12 h 7 d

[1] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.

[2] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[3] Acramite requires spray water to be corrected for pH and hardness. See label.

[4] Less than 4.0 oz/A Apollo is recommended only in established IPM programs and only when adequate numbers of predator mites are present.

7.9 Peach and Nectarine Disease and Pest Management, Non-Bearing Trees

NON-BEARING TREES		PEACHES AND NECTARINES			
DISEASE	**Brown Rot Blossom Blight[1]**	**Scab[2]**			
Product and Formulation	**Product Efficacy Rating[3] and Rate/A[4]**				**REI PHI**
Bravo Weather Stik 6F[5] (pt)	+++ 3.0-4.0	++++ 3.0-4.0			12 h SS[7]
Captan 80WDG[5] (lb)	++ 2.5	+++ 2.5			24 h 0 d
Sulfur, actual[5,6] (lb)	++ 8.0	++ 8.0-12.0			24 h NTL[7]
Ziram 76DF (lb)	++ 4.5-8.0	++ 4.5-8.0			48 h 14 d

[1] Make one application during early bloom on 2-year-old trees. Remove fruit on young trees to avoid formation of brown rot mummies.

[2] Scab control is very important during season prior to first year of harvest. Minimize build-up of inoculum on twigs with sprays at petal fall, shuck-split, and first through fourth cover.

[3] ++++ = excellent, +++ = good, ++ = fair, + = poor, – = ineffective or not rated.

[4] Rates are in amount of formulated product per acre, unless otherwise noted. REI=Restricted Entry Interval. PHI=Preharvest Interval.

[5] Generic products and/or other formulations are available.

[6] Do not use sulfur if temperature is expected to exceed 90°F after spraying.

[7] PHI Key: NTL=No time limit (usually up to the day of harvest) - consult label, SS=No later than shuck-split.

NON-BEARING TREES	PEACHES AND NECTARINES
INSECT OR MITE PESTS	
Choose insecticides and miticides from the insect and mite pest tables in section 7.8.	