

Fruit and Nuts – Commercial

Peaches Spray Schedule			
Time of Spray and Pest	Material/ Insecticide	Amounts in 100 Gallons of Spray	Minimum Number of Days Before Harvest and Comments
Dormant			
Scales, if present	Oil emulsion, 3% actual oil in diluted spray (follow recommendations of manufacturer).		Two sprays must be conducted at least 1 week and no more than 10 days apart to be effective. Be sure to cover underside of scaffold with pressure and not from run-off.
Severe scale infestations	Lorsban 4E (Chlorpyrifos)	0.5-1.0 pint	Only one application of Lorsban per dormant season (and one postharvest for borer control). Do not apply after delayed dormant stage. Not recommended for in-season use. Use a minimum of 1.5 pints/acre.
	Esteem 35WP (Pyriproxyfen)	4.0-5.0 ounce/acre + 1.5 gallons oil	PHI=14 days; use highest labeled rate under heavy infestations. Limit to 3 Esteem applications per season. Allow 14 days between treatments. Sprays must be timed to coincide with crawler emergence. Pyrethroids such as Ambush, Asana, Proaxis and Pounce are often associated with scale outbreaks.
Pink bud to bloom			
Catfacing insects (stink bugs, leaf-footed bugs) (at pink to 10% bloom)	Proaxis (Gamma-cyhalothrin)	0.427-0.853 fl. ounce	Do not apply more than 0.1 pound AI/acre/season; PHI=21 days.
	Mustang Max (Zeta-cypermethrin)	0.43-1.3 fl. ounce	Apply as required by scouting. Allow a minimum of 7 days between applications; PHI=14 days.
Petal fall (when 75% of petals have fallen)			
Curculio	Imidan 70W (Phosmet)	3/4 to 1.0 pound	PHI=14 days; do not apply more than 16lb./acre/season.
	Ambush 25W (Permethrin)	1.6-4.8 ounces	Use higher rate for curculio control. PHI=14 days; Ambush not to exceed 400 gallons/acre/application.
	Mustang Max (Zeta-cypermethrin)	0.43-1.3 fl. ounces	Apply as required by scouting. Allow a minimum of 7 days between applications; PHI=14 days.
	Proaxis (Gamma-cyhalothrin)	0.427-0.853 fl. ounce	Do not apply more than 0.1 pound/ AI/acre/season; PHI=14 days.
Catfacing insects, aphids, scales	Lannate LV (Methomyl)	3/4 pint	PHI=4 days; Highly toxic material; use with caution. Lannate may promote mite infestation. Not for use to control scales.
	Lannate SP (Methomyl)	1/4 pound	
Catfacing insects (stinkbugs, leaf-footed bugs)	Pounce 3.2 EC (Permethrin)	2.0-6.0 ounces	Pyrethroids such as Ambush, Asana, Mustang Max, Proaxis and Pounce are often associated with scale insect outbreaks.
	Proaxis (Gamma-cyhalothrin)	0.427-0.853 fl. ounce	
	Mustang Max (Zeta-cypermethrin)	0.43-1.3 fl. ounce	
Shuck split or first cover (10-12 days later)			
Curculio, catfacing insects, aphids, scales	Same as petal fall		See above.
Second cover (10-12 days later)			
Curculio	Imidan 70W (Phosmet)	3/4 to 1.0 pound	PHI=14 days. See above for remarks.

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Catfacing insects (stinkbugs, leaf-footed bugs)	Ambush 25W (Permethrin)	1.6-4.8 ounces	PHI=14 days; See remarks above.
	Pounce 3.2 EC (Permethrin)	2.0-6.0 ounces	
	Proaxis (Gamma-cyhalothrin)	0.427-0.853 fl. ounce	Do not apply more than 0.1 pound AI/acre/season; PHI=21 days.
	Mustang Max (Zeta-cypermethrin)	0.43-1.3 fl. ounce	Apply as required by scouting. Allow a minimum of 7 days between applications; PHI=14 days.
	Lannate LV (Methomyl)	3/4 pint	PHI=4 days; see notes above for additional remarks.
	Lannate SP (Methomyl)	1/4 pound	
Third cover (12-15 days later)			
Curculio, catfacing insects, scales	Same as second cover spray. (It is recommended to rotate mode of action).		See above for additional remarks.
Fourth cover (14 -21 days later)			
Curculio, catfacing insects	Same as third cover spray. (It is recommended to rotate mode of action).		See above for additional remarks.
Fifth cover (one month prior to harvest)			
Oriental moth, curculio	Sevin 80S (Carbaryl)	0.63-0.94 pounds (= 2½-3¾ pounds/acre)	PHI=3 days; Carbaryl is highly toxic to bees. It tends to increase scales and sometimes mite problems.
Catfacing insects (stinkbugs, leaf-footed bugs)	Imidan 70W (Phosmet)	3/4 to 1.0 pound	PHI=14 days; see notes above.
	Proaxis (Gamma-cyhalothrin)	0.427-0.853 fl. ounce	Do not apply more than 0.1 pound AI/acre/season; PHI=21 days.
	Mustang Max (Zeta-cypermethrin)	0.43-1.3 fl. ounce	Apply as required by scouting. Allow a minimum of 7 days between applications; PHI=14 days.
Oriental moth, catfacing insects	Lannate LV (Methomyl)	3/4 pint	PHI=4 days; see notes above for additional remarks and cautionary statement.
Mites	Savey 50F (Hexythiazox)	3.0-6.0 ounces/acre	PHI=28 days; limit to one application per season. Apply during early infestations. Savey is not effective against adult mite populations.
3 weeks prior to harvest			
Oriental moth, curculio	Imidan 70W (Phosmet)	3/4 to 1.0 pound	PHI=14 days; see notes above.
	Proaxis (Gamma-cyhalothrin)	0.427-0.853 fl. ounce	Do not apply more than 0.1 pound AI/acre/season; PHI=21 days.
	Mustang Max (Zeta-cypermethrin)	0.43-1.3 fl. ounce	Apply as required by scouting. Allow a minimum of 7 days between applications; PHI=14 days.
Oriental moth	Malathion 57EC (Malathion)	2 pints/acre	PHI=7 days.
	Proaxis (Gamma-cyhalothrin)	0.427-0.853 fl. ounce	Do not apply more than 0.1 pound AI/acre/season; PHI=21 days.

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	Mustang Max (Zeta-cypermethrin)	0.43-1.3 fl. ounce	Apply as required by scouting. Allow a minimum of 7 days between applications; PHI=14 days.
Catfacing insects (stinkbugs, leaf-footed bugs)	Sevin 80S (Carbaryl)	0.63-0.94 pound (= 2½-3¾ pounds/acre)	PHI=3 days; Carbaryl is highly toxic to bees. See notes above.
	Lannate LV (Methomyl)	3/4 pint	PHI=4 days; see notes above.
	Proaxis (Gamma-cyhalothrin)	0.427-0.853 fl. ounce	PHI=21 days; see notes above.
	Mustang Max (Zeta-cypermethrin)	0.43-1.3 fl. ounce	PHI=14 days; see notes above.
Mites	Vendex 50 WP (Fenbutatin-oxide)	4.0-8.0 ounces	PHI=14 days; limit to two applications/season. Do not apply more than 3 pounds/acre/year.
2 weeks prior to harvest			
Catfacing insects (stinkbugs, leaf-footed bugs)	Lannate LV (Methomyl)	3/4 pint	PHI=4 days; see notes above.
	Mustang Max (Zeta-cypermethrin)	0.43-1.3 fl. ounce	PHI=14 days; see notes above.
Oriental moth	Malathion 57% EC (Malathion)	2 pints/acre	PHI=7 days.
	Mustang Max (Zeta-cypermethrin)	0.43-1.3 fl. ounce	PHI=14 days; see notes above.
Curculio	Sevin 80S (Carbaryl)	0.63-0.94 pound (= 2½-3¾ pounds/acre)	PHI=3 days; Carbaryl is highly toxic to bees. See notes above.
	Mustang Max (Zeta-cypermethrin)	0.43-1.3 fl. ounce	PHI=14 days; see notes above.
1 week prior to harvest			
Catfacing insects (stinkbugs, leaf-footed bugs)	Sevin 80S (Carbaryl)	0.63-0.94 pounds (= 2½-3¾ pounds/acre)	PHI=3 days; Carbaryl is highly toxic to bees. See notes above.
	Lannate LV (Methomyl)	3/4 pint	PHI=4 days; see notes above.
Mites	Nexter (Pyridaben)		Refer to label for rate for specific species of mites. PHI=7 days; toxic to aquatic organisms; highly toxic to bees. Follow label.
Postharvest trees			
Scales, leafhoppers, shot hole borers	Lorsban 4E (Chlorpyrifos)	1/2 – 1.0 pint	Use as dormant or delayed dormant spray. Limit to one application during dormant or delayed dormant (and one postharvest for borer control). Do not use more than 4 pints/acre. As many as three or more generations of scales may occur after harvest. Any of the regular spray materials may be used to alternate during postharvest at the rates used during the season.
April/October			
Fire ants	Extinguish IGR (Methoprene)	1-1 1/2 pounds/acre	Apply broadcast over orchard floor in April when ants are actively foraging and prior to cold weather in October. Do not allow contact with fruit. Methoprene (A.I. for Extinguish) is an Insect Growth Regulator and therefore is slow acting. Ant population reductions may be observed 3-4 weeks after initial treatment. Apply on dry soil. Follow label for optimal results.

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Trunk Sprays for Peach Tree and Lesser Peach Tree Borer

Thoroughness of coverage is essential for borer control. It is suggested that all growers adopt the practice of spraying the trunk and scaffold limbs each time they spray. This practice will help control the few peach tree borers that emerge early in the season and particularly the lesser peach tree borer.

Effective control of the peach tree borer has been obtained by spraying trunks with Lorsban as listed below.

Material	Formulation	Amount/ 100 Gallons	Time Of Application	Remarks
Lorsban (Chlorpyrifos)	4E	3.0 quarts	Recommended for postharvest use only. Apply as soon after harvest as possible. Use 0.75-1.0 quart of mixture on small trees and 1.5 quarts on larger trees. Best results are obtained closer to peak emergence, between August 2 and September 1. Application may be made early from mid-July on nonbearing trees.	Apply as a directed, handgun application to lower scaffolds, base and trunk. Postharvest use only; limit to one application per season; toxic to fish. Do not use Lorsban on home plantings.
Lorsban (Chlorpyrifos)	4E	1.5 quarts	This rate should be used only when new plantings are being sprayed or low populations of borers exist.	

Peach Pests	
Armored scale	<p>San Jose scale has an ashy-gray appearance, is slightly convex and is about the size of a pinhead. White peach scale spreads very rapidly and is distinguished by a cottony mass that is formed over the infested areas. The entire trunk and main branches will be white in a very short time. Common privet is a wild host for white peach scale which makes this scale abundant all year. Host list is unlimited.</p> <p>Dormant sprays of Lorsban or Esteem plus oil should be used during the dormant season for heavy infestations and once for light infestations. Each season has several generations. It is imperative that each generation be controlled. Several generations occur after harvest, and it is imperative that scale insects be controlled if the trees are to survive.</p>
Soft scale	The terrapin scale is a soft scale about the size of a pencil eraser. The young hatchlings settle on the foliage and remain there until the third instar when they migrate back to the stems to mature and overwinter. The regular spray schedule will control these pests if enough water is used to get proper coverage. They are easiest to control when on the foliage. Oil sprays are ineffective on this scale.
White peach scale and West Indian peach scale	White peach attacks the entire tree and can kill trees if uncontrolled. During the growing season a regular spray program will help to maintain this pest under control. Dormant sprays in the fall or prior to bud break may be applied in commercial production. Two sprays should be applied at 10- to 14-day intervals. COMPLETE COVERAGE IS ESSENTIAL.
Twig borers	Two types of caterpillars infest peaches: the larvae of the Oriental fruit moth and the peach twig borer. The larvae of the Oriental fruit moth infest both the young twigs and fruits and breed throughout the warm season of the year. The peach twig borer attacks the young growing twigs early in the season soon disappearing.
Plum curculio	<p>The plum curculio is a white legless grub that infests the fruits only. The adult is a brownish weevil about 3/16 inch long. It has two generations a year. The first generation is out about bloom. Those that infest the peaches cause the growing fruit to drop. The second generation occurs some 40 to 50 days later.</p> <p>Damage: The curculio causes the fruit to drop during two periods, soon after the young fruit sets and just prior to ripening. The first drop is caused by punctures made and worms hatching from eggs laid by overwintered weevils and the second by worms or grubs of the second generation.</p> <p>Sanitation: The drops should be picked up twice each week during these two periods and destroyed. Picking up and destroying first drops is most important and if thoroughly done will aid materially in ensuring a crop that will be nearly free of worms at harvest time, providing there are no other nearby sources of infestation. Native plums are the most common and important of such sources. Therefore, native plum thickets should be destroyed or fenced in and hogged during the</p>

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Peach Pests	
	<p>dropping periods. Also, volunteer peach and plum trees should be destroyed or treated along with the producing orchard.</p> <p>Pruning: At pruning time, pull and burn all old mummies that carry the brown rot organism over the winter. Also, during the winter, clean and burn weeds and other debris in all areas in and around the orchard such as fence rows, ditch banks, etc. where the adult curculio and other pests may hibernate. These precautions aid in reducing infestations the following season.</p> <p>Note: Where chewing or sucking insects are a potential problem, sprays should be made when buds are in the pink stage. Do not apply during blossoming. Effectiveness of the cover sprays may be improved by the addition of a spreader sticker. One should certainly be used when this schedule is followed with plums and nectarines.</p>
Peach tree borer and lesser peach tree borer	<p>Borer tunneling is particularly injurious to young trees. Lesser peach tree borer (LPTB) adults lay eggs from spring to early winter. Most egg-laying from the peach tree borer (PTB) occurs from mid-June to early September. The peach tree borer attacks the crown area of the roots of peach, plum and related trees. Borer infestations can be detected by the presence of frass and pupal cases protruding from the ground near the trunk (PTB) or scaffold limbs (LPTB). Initiate sprays soon after harvest. Use a hand-gun spray directed to lower scaffolds, vase and trunk. Direct the spray at the trunk from the crotch at the scaffold limbs to the soil line. Completely wet the trunk and spray enough solution to wet or slightly puddle the spray at the base of the tree. It is essential that the trunk and soil area are wet all around the tree. Older trees may benefit from thorough coverage as some LPTB infestation concentrate in areas where primary scaffolds split.</p>
Rusty brown plum aphid	<p>The rusty brown plum aphid is present each year doing more or less damage to the foliage of plum and young peach trees shortly after they put out leaves. New foliage that is attacked becomes distorted and crumpled. Heavy infestations may injure the terminal buds that will stop growth, kill the blossoms and prevent fruit from setting.</p>
Plant bugs	<p>Several species of plant bugs injure peaches. These include the leaf-footed bug, several species of stinkbugs and the tarnished plant bug. These insects pierce the green peaches with their beaks and then suck the sap for food. Young peaches, especially those punctured by the larger bugs, may drop. Otherwise, the peaches are usually misshaped, knotty or catfaced. This damage renders the fruit unmarketable. These insects are usually worse following winter cover crops, and the damage is done when the peaches are small. Plant bugs may also be pests after harvest by feeding on young terminals. This injury or flagging of terminals may appear to be an Oriental fruit moth. If stems are dry and not hollowed out, damage it is from plant bugs.</p>
Shot hole borer	<p>The shot hole borer is a small beetle that attacks peach and related trees boring numerous small holes in the trunks and limbs. Its attack is confined largely to trees that are dying or in low vitality due to attack of insects, diseases, or other causes. The control and prevention consist of removing all dying trees, pruning infested limbs of other trees and burning. The control of other insects and diseases, fertilization and cultivation keep the trees healthy and vigorous. Without proper management of potential habitats for these beetles, they can seriously affect leaf and fruit buds. These beetles overwinter in all forms. If weather conditions are favorable, they can emerge in January or February. At this time they have only the buds to feed on and they can eat every bud of available trees.</p>