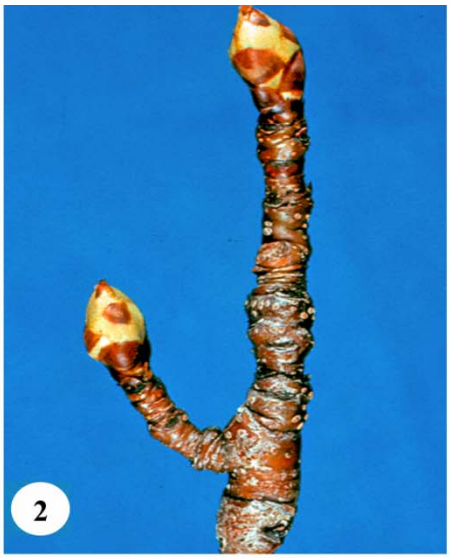

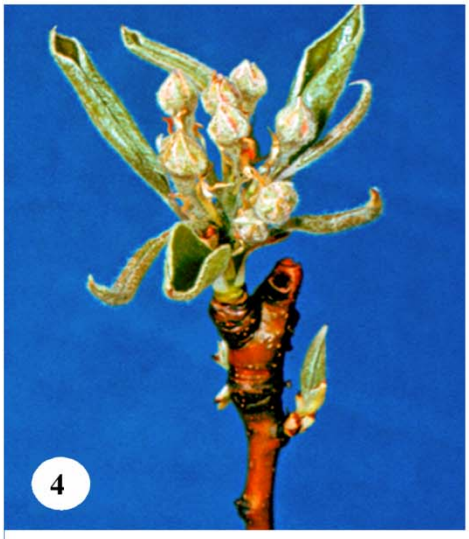

FIGURE 12.1.1

GROWTH STAGES IN PEAR

1. Dormant
2. Swollen bud
3 Bud burst
4. Green cluster
5. White bud
6. Bloom
7. Petal fall
8. Fruit set

12 General Pest Management Considerations – Pears

12.1 Diseases

Fabraea Leaf Spot

• Biology & Cultural

[1.1] Bosc and Seckel are much more susceptible than Bartlett.

• Pesticide Application Notes

[1.2] It is important to prevent the establishment of early primary infections. Sprays should start at green cluster if the year is wet and disease was prevalent last year; otherwise, wait until white bud. Continue sprays at 10- to 14-day intervals through 1st or 2nd cover. In orchards with high inoculum, apply a mancozeb spray at 7-day intervals after petal fall until reaching either the 77-day PHI or the limit on the number of sprays per season. A 3-wk summer spray schedule will normally maintain control if early infections have been prevented. Summer applications of Sovran, Flint or Pristine to control scab or sooty blotch should also control Fabraea leaf spot. For resistance management, do not apply more than four applications per year of Sovran (Group 11), Flint (Group 11), Pristine (Group 7+11) or those with similar modes of action. Do not make more than two sequential applications before alternating to a fungicide with another mode of action. Pear psylla may facilitate the spread of leaf spot during summer, so controlling psylla is important in high-pressure orchards. Using summer oils to suppress pear psylla may also suppress spread of Fabraea leaf spot during late summer.

Fire Blight

• Biology & Cultural

[2.1] Fire blight is an even more serious disease on pears than it is on apples. In general, the control strategies recommended for apples apply equally to pears. Bartlett, Bosc, Clapps Favorite, and Gorham are all extremely susceptible varieties. D'Anjou is slightly less susceptible, but comparable to the most highly susceptible apple variety; Seckel is considered moderately susceptible. Refer to the discussion of this disease in the "General Pest Management Considerations for Apples" section. For more details on optimizing streptomycin blossom blight sprays, see footnote 8.3 in the apple section.

[2.2] The best program for reducing summer spread of fire blight is good psylla control.

Refer to the reference materials list at the end of this publication for a Fact Sheet containing more details on the biology and management of this pest. Also see Pear Psylla in this section.

• Pesticide Application Notes

[2.3] While specifically labeled for control of pseudomonas blight, a (§)copper spray also will assist with control of fire blight. However, it will not eliminate the need for streptomycin at bloom. It is effective in reducing the population of overwintering fire blight bacteria, and is a useful component in an overall fire blight control program. Thorough coverage of the entire tree is necessary for maximum effectiveness, so high-gallonage sprays are preferred. Leaf burning may occur if applied beyond bud burst, especially under slow drying conditions. The oil should be added at a rate of 1 qt per 100 gal of actual spray solution in the tank (i.e., do not concentrate the oil). If using Bordeaux mix, prepare as described in the "Fungicides" section of "Characteristics of Crop Protectants." Add the oil after adding lime, but before making up to volume. The 1 qt of oil is added to increase the efficiency of the copper compounds and is not sufficient for good psylla control. A separate oil application can be made for psylla, or 3 gal of oil can be used with the copper sprays. Several other commercial copper formulations in addition to those listed are labeled for this use on pears. Although they have not been tested, research on other crops suggests that most copper formulations should give comparable rates of control at comparable rates of metallic copper.

[2.4] (§)Streptomycin is not recommended for routine summer use, but is strongly recommended for use within 24 hr after the start of a hail storm.

[2.5] Bloomtime Biological is labeled for blossom blight control in pears. This biopesticide is consistently less effective than streptomycin, but may be a viable option in orchards with low levels of fire blight inoculum and during environmental conditions indicative of a low risk of infection. In NY apple orchards, this product has been shown to provide up to 50% control when applied during bloom compared to streptomycin.

[2.6] §Mycoshield is now registered for fire blight and can be included in the management program for blossom blight. This antibiotic is consistently less effective than streptomycin, but may be viable option as a resistant management tool when used in rotation with streptomycin. Use primarily in orchards with low levels of fire blight inoculum. Research conducted in New York suggests that this product may only provide up to 50% control when applied during bloom compared to streptomycin.

[2.7] §Serenade can be integrated into a fire blight control program, but it has been consistently less effective than streptomycin. Therefore, Serenade should be used only in rotational programs with streptomycin and not as the sole bactericide for fire blight management. Research at Geneva suggests that streptomycin should be the first product applied during bloom, particularly when conditions are very favorable for the development of fire blight. Serenade should be applied 24 hr after the infection event.

Pear Scab

• Biology & Cultural

[3.1] Seckels are very susceptible to scab; Bosc and D'Anjou, somewhat less so; Bartlett is relatively resistant.

• Pesticide Application Notes

[3.2] If scab developed the previous year, sprays should begin at green cluster and continue at 7- to 10-day intervals through 2nd cover. In blocks with little history of scab, applications from white bud through 1st cover should provide sufficient protection. Additional cover sprays will be necessary if scab becomes established and the season remains wet. Use of Topsin M and Thiophanate-methyl should be limited during the early season if substantial use is anticipated later in the season for control of sooty blotch and Fabraea leaf spot. Note: Topsin M and Thiophanate-methyl have a 3-day (72 hr) REI.

[3.3] Mancozeb fungicides are more effective than ferbam or ziram. Mancozeb is labeled for use on pears in one of two different ways: (i) at a rate of 1.5-2 lb/100 gal (maximum 6 lb/A, no more than 24 lb/A per year), not to be applied after bloom; OR (ii) at a reduced rate of 3 lb/A (maximum 21 lb/A per year), which may be applied to within 77 days of harvest.

The latter program is particularly valuable where Fabraea leaf spot and sooty blotch must be controlled in the early summer. It is illegal to combine or integrate the two treatment regimes or to use any mancozeb sprays after bloom if any of the earlier sprays were applied at more than 3 lb/A of formulated product.

[3.4] Sovran and Flint are excellent protectants, and will be most reliable when used in this manner. They have 48-72 hr post infection activity against pear scab. They significantly reduce spore production from the lesions that develop when the fungicides are applied several days after the start of an infection period. Sovran, Flint and Pristine are not registered for control of Fabraea leaf spot but they should control leaf spot when applied during the summer. They provide good control of black rot on apples, but they are not registered for control of this disease on pears and experience with control of black rot on pears is lacking. The strobilurins are prone to resistance development, and it appears that resistance to one member of this class of materials confers resistance to other products in the class (cross-resistance). The primary strategies for reducing the resistance risk are to: (i) rotate these materials with unrelated fungicides; and (ii) limit the number of seasonal applications of a strobilurin (the labels say limit to four per year).

[3.5] Note that Vintage is not labeled until petal fall (potential fruit shape problems if used earlier). Vintage has 72-96 hr postinfection activity but limited protectant activity. It should be combined with mancozeb to improve fruit scab control and protect against other diseases such as sooty blotch and Fabraea leaf spot. Note the mancozeb restrictions listed in [3.3].

[3.6] The risk of primary scab is greatly reduced after 1st or 2nd cover. Where scab has been well controlled and there is no history of leaf spot problems, it is possible to extend fungicide spray intervals to 14-21 days after the 3rd cover has been applied. If these diseases have not been controlled, fungicides should be applied at 10- to 14-day intervals throughout the summer, except during drought periods. Observe mancozeb restrictions detailed in [3.3].

Sooty Blotch

• Biology & Cultural

[4.1] Sooty blotch develops gradually during periods of rain, dew, and very high humidity. The disease is favored by frequent showers, poor air circulation, and proximity to sources of inoculum such as woods and brushy hedgerows. Fungicide control programs should begin around 1st cover, depending upon weather and inoculum pressure. Pruning to improve air circulation through the canopy will reduce the total fungicide need in most years. See [3.3] above and remark [10.1] in the General Pest Management Considerations for Apples section for additional information about sooty blotch.

12.2 Insects and Mites

Aphids, Including Spirea Aphid

• Pesticide Application Notes

[5.1] Calypso or Movento applied at petal fall will also control Comstock mealybug. Movento must be used with a horticultural mineral oil or nonionic spray adjuvant. For best effectiveness and insecticide resistance management, the use of pre-mixes such as *Leverage should be reserved for those situations when the pest complex to be treated is appropriately matched to the combination of active ingredients and modes of action contained in the product. **[5.2]** For enhanced residual control, combine M-Pede with another recommended product.

Brown Marmorated Stink Bug – refer to section on Stink Bugs

Codling Moth

• Biology & Cultural

Refer to the reference materials list at the end of this publication for a Fact Sheet containing details on the biology and management of this pest.

• Pesticide Application Notes

[6.1] Summer sprays should be timed to start approximately at the 10% hatch point, 175-200 DD (base 45°F) after the first adult catch of the second brood, with a second application in 10-14 days. Use of a non-ionic surfactant is recommended with Assail. Pyrethroid insecticides applied during summer against pear psylla will control codling moth. Use Sevin at 1 lb rate. For best effectiveness and insecticide resistance management, the use of pre-mixes such as *Leverage and *Voliam Xpress should be reserved for those situations when the pest complex to be treated is appropriately matched to the combination of active ingredients and modes of action contained in the product. Suggested action threshold: when commercial trap catch exceeds that in abandoned orchard and night temperature is at least 55°F.

• Biological & Non-chemical Control

§Carpovirusine and §Cyd-X (granulosis virus) registered only in Vermont at this time. §Isomate C (pheromone mating disruption) only registered in Vermont and Maine. Better control is obtained when pheromone disruption begins with the first generation of the season; regardless, products for disruption should be applied before first flight of the generation being targeted. Insecticide sprays or double the rate of pheromones may be needed in border rows of orchards adjacent to sources of adult immigration or in other high pressure situations.

Comstock Mealybug

• Biology & Cultural

Refer to the reference materials list at the end of this publication for a Fact Sheet containing details on the biology and management of this pest.

• Pesticide Application Notes

[7.1] Sprays recommended at petal fall and 7d later, against newly emerged crawlers. Research suggests that treatments against 2nd generation crawlers are more effective, but petal fall sprays may be of use in keeping populations low. Movento must be used with a horticultural mineral oil or nonionic spray adjuvant. Actara and Calypso will also control plum curculio and pear psylla when applied at petal fall. Do not make more than one application of Actara per season. A maximum of two applications of diazinon are allowed per year: 1) a maximum of one as a dormant application and 2) a maximum of one as an in-season foliar application regardless of target pest.

[7.2] Two sprays recommended for the 2nd generation, 7 days apart, against newly hatched crawlers. Begin approximately Aug. 1. Movento must be used with a horticultural mineral oil or nonionic spray adjuvant Suggested action threshold: 5% calyx infestation of previous year's crop.

European Red Mite, Twospotted Spider Mite

• Biology & Cultural

Refer to the reference materials list at the end of this publication for a Fact Sheet containing details on the biology and management of this pest.

• Pesticide Application Notes

[8.1] Applications advised as needed in summer. Acramite and Apollo are not effective against rust mite. Kanemite and Portal limited to a maximum of 2 applications per season; best results obtained with 2 pt rate. Use 10.7 oz/A of Nexter if treatment is only for twospotted spider mite; use lower rate for European red mite. Nexter, Savey, Onager, Envidor and Acramite limited to 1 application per season. Pear psylla may also be controlled if Portal is used at the 2 pt/A rate or if Nexter is used at the 6.6 oz/A rate. Suggested action threshold: 6 motile forms/leaf.

Green Fruitworms

• Biology & Cultural

Refer to the reference materials list at the end of this publication for a Fact Sheet containing details on the biology and management of this pest.

• Pesticide Application Notes

[9.1] Growers can usually wait until petal fall to assess the need for treatment. Only 1.8 lb AI/acre applications of *Lannate permitted per season. Lannate cannot be used after a "pick-your-own" site is opened for public entry. It is recommended that pyrethroids not be used more than 1-2 times per season in any orchard. For best effectiveness and insecticide resistance management, the use of pre-mixes such as *Endigo, *Leverage and *Voliam Xpress should be reserved for those situations when the pest complex to be treated is appropriately matched to the combination of active ingredients and modes of action contained in the product. Suggested action threshold: 3 larvae/tree on large trees (27-40 trees/A); 1 larva/tree at density of 140 trees/A.

Obliquebanded Leafroller

• Biology & Cultural

Refer to the reference materials list at the end of this publication for a Fact Sheet containing details on the biology and management of this pest

• Pesticide Application Notes

[10.1] Spray recommended when last petals are falling. Only 1.8 lb AI/acre of Lannate permitted per season. Lannate cannot be used after a "pick-your-own" site is opened for public entry. Will also help control Comstock mealybug. A pyrethroid applied now against pear psylla will also control obliquebanded leafroller. For best effectiveness and insecticide resistance management, the use of pre-mixes such as *Endigo or *Voliam Xpress should be reserved for those situations when the pest complex to be treated is appropriately matched to the combination of active ingredients and modes of action contained in the product. Suggested action threshold: 5-10% infested clusters.

[10.2] For 1st summer brood in July, begin applications approximately 360 DD [base 43° F] after 1st adult trap catch. Only 1.8 lb AI/acre applications of *Lannate permitted/season. Lannate cannot be used after a "pick-your-own" site is opened for public entry. For best effectiveness and insecticide resistance management, the use of pre-mixes such as *Leverage and *Voliam Xpress should be reserved for those situations when the pest complex to be treated is appropriately matched to the combination of active ingredients and modes of action contained in the product.

Pear Midge

• Pesticide Application Notes

[11.1] Two spray applications between the swollen bud and white bud stages. If Guthion is applied, the user shall not authorize any person who is not covered by the Worker Protection Standard (WPS), such as members of the general public involved in "pick-your-own," to enter a treated area after application of this product for the entire growing season.

Pear Psylla

• Biology & Cultural

Refer to the reference materials list at the end of this publication for a Fact Sheet containing details on the biology and management of this pest.

• Pesticide Application Notes

[12.1] To inhibit egg-laying by psylla, apply oil as soon as first eggs are laid in the spring; timing is especially critical (not effective if >20% of spring oviposition has occurred). Make 2nd application in 7 days if adults are still present. If 2 sprays are anticipated, drop rate to 2 gal for both. The 3 gal rate can also help reduce overwintering populations of European red mite, pearleaf blister mite, and Comstock mealybug. Suggested action threshold for pear psylla: 1 egg in a 3-minute inspection of buds.

[12.2] Apply insecticide from swollen bud through white bud. Pear rust mite may build up with repeated pyrethroid use. Seasonal maximum for *Pounce is 0.8 lb a.i./A; for *Asana, up to 0.2 lb a.i./A during the dormant to white bud stage and up to 0.225 lb a.i./A between bloom and harvest (but no more than 0.375 lb total a.i./A per season). Esteem 35WP may be applied once prebloom at 5 oz/A, or once prebloom and once at petal fall at 4-5 oz/A. *Warrior provides suppression only. Improved activity of Delegate may be obtained by addition of an adjuvant such as horticultural mineral oil. Movento must be used with an organosilicone or nonionic spray adjuvant. *Centaur may cause phytotoxicity in Oriental pear varieties when applied prior to petal fall. Do not apply more than 11 oz (product) of Actara per season. Suggested action threshold before white bud: 6-10% of spurs with eggs.

[12.3] §M-Pede can provide suppression when used in a seasonal program. Uniform drying conditions are required to prevent droplet residue on fruit; short residual period.

[12.4] One spray of (§)oil at 2 gal rate, or 2 sprays at 1 gal rate, recommended through tight cluster.

[12.5] Nexter limited to a maximum of 1 application per season. Portal limited to a maximum of 2 applications per season. Esteem may be applied once prebloom at 5 oz/A, or once prebloom and once at petal fall at 4-5 oz/A. Suggested action threshold after fruit set: Avg of 1-2 nymphs per terminal leaf. *Agri-Mek can be used anytime from petal fall to about 4 weeks afterward, but is most effective when applied before foliage begins to harden off, generally within the first 2 weeks after petal fall. Agri-Mek and Movento should be applied in combination with a horticultural spray oil (not a dormant oil) or other penetrating surfactant. Improved activity of Delegate may be obtained by addition of an adjuvant such as horticultural mineral oil. Actara and Calypso will also control plum curculio and Comstock mealybug when applied at petal fall. Centaur can be used anytime in season but at the beginning of egg hatch. Restricted to 2 applications of Centaur per season. MA only. Phytotoxicity may occur in Oriental pears-limit applications to pre-petal fall. Portal can be used at 2 pt/acre in rotation.

[12.6] Frequent applications (7-10-day intervals) of §Surround and maximal coverage (minimum of 100 gal/A) are advised while there is active foliar growth.

• Pesticide Resistance

[12.7] Variable levels of pear psylla tolerance or resistance to pyrethroids have been seen in New York (and are likely in New England), so growers should alternate use of pyrethroids with other materials to delay the development of resistance in their orchards. The preferred strategy would be to withhold their use until (and unless) needed in the summer.

Pear Rust Mite

• Pesticide Application Notes

[13.1] In blocks with a history of rust mite infestations, a preventive petal fall spray might be advisable. Nexter limited to a maximum of 1 application per season. Also, see [8.1].

Pearleaf Blister Mite

• Pesticide Application Notes

[14.1] A spray of oil plus diazinon or oil plus *Thionex, in the spring, just before the green tissue begins to show. A maximum of two applications of diazinon are allowed per year: a maximum of one as a dormant application and 2) a maximum of one as an in-season foliar application regardless of target pest. See [12.1].

[14.2] A fall application post-harvest, when there is no danger of frost for at least 24-48 hr after the spray.

Plum Curculio

• Biology & Cultural

Refer to the reference materials list at the end of this publication for a Fact Sheet containing details on the biology and management of this pest.

• Pesticide Application Notes

[15.1] Sprays recommended at petal fall and 10 days later. 1st brood codling moth is also controlled by these materials; (see [6.1] for 2nd brood control). Imidan also controls fruit tree leafroller. Actara will also control pear psylla and Comstock mealybug when applied at petal fall. For best effectiveness and insecticide resistance management, the use of pre-mixes such as *Leverage or *Voliam Xpress should be reserved for those situations

when the pest complex to be treated is appropriately matched to the combination of active ingredients and modes of action contained in the product.

Redbanded Leafroller

• Biology & Cultural

Refer to the reference materials list at the end of this publication for a Fact Sheet containing details on the biology and management of this pest.

• Pesticide Application Notes

[16.1] Two sprays, from mid-July to early August, for 2nd brood control in problem blocks; note PHI restrictions. For best effectiveness and insecticide resistance management, the use of pre-mixes such as *Leverage should be reserved for those situations when the pest complex to be treated is appropriately matched to the combination of active ingredients and modes of action contained in the product.

Spotted Wing Drosophila

•Biology & Cultural

[17.1] This is an exotic species of vinegar fruit fly, a group normally attracted to damaged and rotting fruit. But in contrast to endemic Drosophila fruit flies, it has a serrated ovipositor and will lay eggs in intact ripening fruit on the tree; it is also a pest of berry fruit crops. Originally known from Japan, it has been found thoughout southern New England. Refer to the reference materials list (17.4.2, Other References) at the end of this publication for fact sheets containing details on the biology and management of this species.

• Pesticide Application Notes

[17.2] Apply at first signs of adult activity. If repeated applications are necessary, rotate active ingredients to avoid promoting resistance in local populations. Delegate and Entrust are labeled for suppression only.

Stink Bugs (including Brown Marmorated Stink Bug)

• Biology & Cultural

[18.1] A number of native stink bug species can sometimes cause fruit damage in all tree fruits under conditions that are not fully understood. Adult feeding during bloom and shuck split can cause the fruit to abort, and feeding later in the summer can cause a deep catfacing injury such as that caused by tarnished plant bug, or depressed, dimpled, corky or water-soaked areas on the skin. All tree fruits are attacked, especially peaches and apples. Other species of stink bugs are predators. Elimination of alternate host broadleaf weeds, especially legumes, in the orchard will contribute to management efforts. If control is needed, insecticides should be timed to kill immigrating adults as they appear in the orchards to prevent feeding damage and subsequent mating and egglaying.

The brown marmorated stink bug is an invasive species from Asia that was first documented in Allentown, PA in 2001. This insect has spread across a number of eastern US States, and now extends to the west coast as well. It was first documented in NY in the Hudson Valley Region in 2008. Although it can be found throughout NY in and around structures and vehicles, extensive monitoring efforts in 2011 resulted in very few detections in agricultural crops; however, reports of sightings have been increasing. Refer to the reference materials list (17.4.2, Other References) at the end of this publication for fact sheets containing details on the biology and management of brown marmorated stink bug.

• Pesticide Application Notes

[18.2] Apply at first signs of infestation; BMSB are very mobile pests, and may reinfest the treated area quickly. If repeated applications are necessary, rotate active ingredients to avoid promoting resistance in local populations. *Actara, *Danitol, *Lannate, and *Vydate have FIFRA Section 2(ee) registrations for BMSB; the labeling must be in the possession of the user at the time of pesticide application. Only 1 application of *Vydate allowed per season. For best effectiveness and insecticide resistance management, the use of pre-mixes such as *Endigo, *Leverage and *Voliam Xpress should be reserved for those situations when the pest complex to be treated is appropriately matched to the combination of active ingredients and modes of action contained in the product.

Tarnished Plant Bug, Pear Plant Bug

Refer to the reference materials list at the end of this publication for a Fact Sheet containing details on the biology and management of this pest.

• Pesticide Application Notes

[19.1] Recommended spray timing is from green cluster to white bud. . For best effectiveness and insecticide resistance management, the use of pre-mixes such as *Leverage or *Voliam Xpress should be reserved for those situations when the pest complex to be treated is appropriately matched to the combination of active ingredients and modes of action contained in the product. Suggested action threshold: plant bugs—3 bleeding sites/tree, or a cumulative catch of 7 adults by white bud stage (white sticky-board trap). See [12.7].

12.3 Pear Spray Table

Table 12.3.1. Pesticide Spray Table – Pears

Refer to back of book for key to abbreviations and footnotes.

Pest		Product	Amt/100 gal	Amt/A	REI (hrs)	PHI (days)	Comments (see text)
Dormant							
Fire blight and Pseudomonas spur blight		Bordeaux mixture, 8-8-100					[2.3]
		(copper sulfate)	8 lb/100 gal		24	BL	
		(spray lime)	8 lb/100 gal				
		plus					
		oil	1 qt/100 gal				
	OR	C-O-C-S 8 lb	2-4 lb/100 gal		24	BL	
	OR	Cuprofix Ultra 40 Disperss		7.5-10 lb./A pseudomonas/0.75 lb/acre fire blight	48	GT	
	OR	Kocide 3000		5.25 – 7 lb/acre see comments	48	HIG	
	OR	§Champ WG		8-16 lb./A	24	HIG	
		or other(§)coppers	see comments				
Pear psylla, European red mite		(§)oil	3 gal/100 gal		12	0	[12.1]
Pearleaf blister mite		oil	1-1.5 gal/100 gal				[14.1]
		plus					
		*Diazinon 50WP	1 lb/100 gal		96	21	
	OR	oil	1-1.5 gal/100 gal				
		plus					
		*Thionex 50WP	0.5-0.75 lb/100 gal	4 lb/acre	20 days	20	
		or *Thionex 3EC	0.33/0.5 qt/100 gal	2.67 qt/acre	7 days	7	
Swollen Bud							
Pear midge		*Guthion 50WS	0.5-0.75 lb/100gal		14 days(E)	14	[11.1]
Pear psylla		Actara 25WDG		5.5 oz/A	12	35	[12.2]
	OR	*Agri-Mek 0.15EC	2.5-5.0 fl oz/100 gal		12	28	[12.5]
	OR	*Calypso 4F	1-2 fl oz/100 gal		12	30	
	OR	Delegate 25WG		6.0-7.0 oz./A	4	7	[12.5]
	OR	Esteem 35WP		4-5 oz/A	12	45	[12.5]
	OR	Movento 240SC		6-9 oz/acre	24	7	[12.5]
	OR	Portal 0.4EC		2 pt/acre	12	14	[12.5]
	OR	*Proaxis 0.5CS		2.6-5.1 fl oz/A	24	21	
	OR	*Proclaim	0.8-1.2 oz/100	3.2-4.8 oz/A	12	14	
	OR	Nexter 75WS		6.6-10.7 oz/A	12	7	
Insecticide with "Fair" efficacy rating for pear psylla. Additional "Fair" options listed under Petal Fall –							
		Ambush EC (or equivalent dose of Perm-Up, Pounce)		12.8-25.6 fl oz/A	12	Pre-bloom	

Table 12.3.1. Pesticide Spray Table – Pears

Refer to back of book for key to abbreviations and footnotes.

Pest		Product	Amt/100 gal	Amt/A	REI (hrs)	PHI (days)	Comments (see text)
Green Cluster							
Fabraea leaf spot		Same materials as recommended for pear scab					[1.2]
Pear scab		Topsin M WSB, 70WP	4 oz./100 gal	1 lb	48	1	[3.2]
		or Thiophanate-methyl 85WDG	3.2 oz./100 gal		72	1	
		or T-Methyl 70W	0.25 lb	1 lb	48	1	
		or Vintage SCC	4 fl oz./100 gal				
		or Procure 50WP	4 oz./100gal				
		or Inspire Super MP		8.5-12 fl oz	12	14	
		plus					
		Dithane/*Manzate/ Penncozeb 75DF	1 lb/100 gal		24	BL, 77 (A)	[3.3]
	OR	Dithane/*Manzate/ Penncozeb 75DF	1-2 lb/100 gal		24	BL, 77 (A)	[3.3]
	OR	Tebuzol 45DF	2 oz	4-8 oz	120	75	
	OR	Ziram 76DF	1.5-2 lb/100 gal		48	14	
	OR	Adament 50WG		4-5 oz	12	75	
Pear Midge		*Guthion 50WS	0.5-0.75 lb/100 gal		14 days(E)	14-21(A)	[11.1]
Tarnished plant bug, plant bug		*Asana XL 0.66EC	2-5.8 oz/100 gal		12	28	[19.1]
	OR	*Baythroid XL 1E		2.0-2.4 fl oz/A	12	7	
	OR	Beleaf 50SG		2.0-2.8 oz/A	12	21	
	OR	*Brigade 10WS		6.4-32 oz/A	12	14	
	OR	*Danitol 2.4EC		16-21.3 fl oz/A	24	14	
	OR	*Guthion 50WS	0.5-0.75 lb/100 gal		14 days (E)	14-21(A)	
	OR	*Pounce 3.2E		8-16 fl oz/A	12	PB	
	OR	*Proaxis 0.5CS		2.6-5.1 fl oz/A	24	21	
	OR	*Warrior II 2.08 CS		1.28-2.56 fl oz/A	24	21	
The following pre-mix products are also labeled for use against these pests; however, for best effectiveness and insecticide resistance management, their use should be reserved for situations when multiple pest species present are appropriately matched to the combination of active ingredients and modes of action contained in the product							
	OR	*Leverage 360	see label	2.4-2.8 fl oz/A	12	7	
	OR	*Voliam Xpress	see label	6-12 fl oz/A	24	21	
White Bud							
Fabraea leaf spot		See Green Cluster sprays					
Pear scab		Choose from materials listed under Green Cluster					
	OR	Flint 50WG	0.67-0.8 oz/100 gal		12	14	[3.4]
	OR	Sovran 50WG	1.0-1.6 oz/100 gal		12	30	
Pear psylla		See Swollen Bud sprays					[12.2], [12.4]
	OR	Centaur	--	34.5 to 46 oz	12	14	

Table 12.3.1. Pesticide Spray Table – Pears

Refer to back of book for key to abbreviations and footnotes.

Pest		Product	Amt/100 gal	Amt/A	REI (hrs)	PHI (days)	Comments (see text)
Bloom							
Fire blight		§Agri-mycin 17WP or Streptrol 17WP or Firewall 17WP	0.5 lb/100 gal	24 oz./A	12	30	[2.1]
	OR	§Agri-mycin 17WP or Streptrol 17WP or Firewall 17WP *plus* Glycerine (CP or USP grade) or Regulaid	0.25 lb/100 gal 2 qt/100 gal 0.25 pt/100 gal		12	30	
	OR	Mycoshield	1.0 lb		12	60	[2.6]
	OR	§Serenade ASO		2-6 qt	4	0	[2.7]
	OR	§Bloomtime Biological FD		150 g	4	PF	[2.5]
Pear scab, Fabraea leaf spot		Choose from materials listed previously					
Petal Fall							
Pear scab, Fabraea leaf spot		Choose from materials listed previously					
	OR	Vintage SC *plus* Dithane/*Manzate/ Penncozeb 75DF	2-4 fl oz/100 gal 1 lb/100 gal	6-12 oz/A	24 24	30 BL/77(A)	[3.5] [3.3]
	OR	Flint 50WG	0.67-0.8 oz/100 gal	2-2.5 fl oz/A	12	14	[3.4]
	OR	Pristine 38WG		14.5-18.5 oz/A	12	0	
	OR	Ziram 76DF	24-32 oz/100 gal		48	14	
Aphids, including spirea aphid		Assail 30SG		2.5-4.0 oz/A	12	7	
		*Admire Pro 4.6SC	See label	2.8 fl oz	12	7	
	OR	§Aza-Direct 1.2L		16-32 fl oz/A	4	0	
	OR	Beleaf 50SG		2.0-2.8 oz/A	12	21	
	OR	Calypso 4F	1-2 fl oz/100 gal		12	30	[5.2]
	OR	*Dimethoate 4EC	0.5 pt/100 gal		240	28	
	OR	§M-Pede 49L	1-2 gal/100gal		12	0	
	OR	Movento 240SC		6-9 oz/acre	24	7	[5.1]
The following pre-mix product is also labeled for use against these pests; however, for best effectiveness and insecticide resistance management, its use should be reserved for situations when multiple pest species are present and appropriately matched to the combination of active ingredients and modes of action contained in the product							
		Leverage 360	See label	2.4-2.8 fl oz/acre	12	7	
Codling moth		Pheromone disruption:					[6.2]
		Checkmate CM-F		2.4-4.8 oz/acre	12	7	
Comstock mealybug		Actara 25WDG		4.5-5.5 oz/A	12	35	[7.1]
	OR	Assail 30SG		4.0-4.8 oz/A	12	7	

Table 12.3.1. Pesticide Spray Table – Pears

Refer to back of book for key to abbreviations and footnotes.

Pest		Product	Amt/100 gal	Amt/A	REI (hrs)	PHI (days)	Comments (see text)
Petal Fall (continued)							
Comstock mealybug *(continued)*	*OR*	Calypso 4F	1-2 fl oz/100 gal		12	30	
	OR	*Centaur		34.5-46 oz/acre	12	14	[12.5]
	OR	*Diazinon 50WP	1 lb/100 gal		96	21	
	OR	Movento 240SC		6-9 oz/acre	24	7	
	OR	Portal 0.4EC		2 pt/acre	12	14	
	OR	Admire Pro	see lable	7 fl oz/A	12	7	[7.1]
Green fruitworms		Altacor 35WDG		2.5-4 oz/acre	4	5	[9.1]
	OR	*Asana XL 0.66EC	2-5.8 fl oz/100 gal		12	28	[9.1]
	OR	*Assail 30SG		4.0-8.0 oz/A	12	7	
	OR	Baythroid XL 1E		1.4-2.0 fl oz/A	12	7	
	OR	Belt 4SC	See label	3-5 fl oz/A	12	14	
	OR	*Lannate 2.4L	0.75 pt/100 gal		48-96(E)	7	
	OR	*Proaxis 0.5CS		2.6-5.1 fl oz/A	24	21	
	OR	*Proclaim 5SG	0.8-1.2 oz/100 gal		12	14	
	OR	*Thionex 50WP	1 lb/100		20 days	20	
		or Thionex 3EC	21.3 oz/100 gal		7 days	7	
	OR	*Warrior 1CS		2.6-5.1 fl oz/A	24	21	
		or *Warrior II 2.08 CS		1.28-2.56 fl oz/A	24	21	
The following pre-mix products are also labeled for use against this pest; however, for best effectiveness and insecticide resistance management, their use should be reserved for situations when multiple pest species present are appropriately matched to the combination of active ingredients and modes of action contained in the product.							
		*Endigo ZC	See label	5-6 fl oz/acre	24	35	
		*Leverage 60	See label	2.4-2.8 fl oz/acre	12	7	
		*Voliam Express	See label	6-12 flo oz/acre	24	21	
Pear psylla		Actara 25WDG		5.5 oz/A	12	35	[12.5]
	OR	Admire Pro 4.6CS	See label	7 fl oz/acre	12	7	
	OR	*Agri-Mek *SC	25.0 fl oz/100 gal	2.25-4.25 fl oz/acre	12	28	[12.5]
	OR	*Calypso 4F	1-2 fl oz/100 gal		12	30	
	OR	Delegate 25WG		6.0-7.0 oz./A	4	7	[12.5]
	OR	Esteem 35WP		4-5 oz/A	12	45	[12.5]
	OR	Movento 240SC		6-9 oz/acre	24	7	[12.5]
	OR	Portal 0.4EC		2 pt/acre	12	14	[12.5]
	OR	*Proaxis 0.5CS		2.6-5.1 fl oz/A	24	21	
	OR	*Proclaim	0.8-1.2 oz/100	3.2-4.8 oz/A	12	14	
	OR	Nexter 75WS		6.6-10.7 oz/A	12	7	
Insecticides with "Fair" efficacy rating for pear psylla –							
		Assail 30SG		4.0-8.0 oz/A	12	7	
	OR	*Asana XL 0.66EC	2.0-5.8 fl oz/100 gal		12	28	
	OR	*Baythroid XL 1E		2.4-2.8 fl oz/A	12	7	
	OR	Belay	1.5-3 oz/100 gal	6-12 oz/A	12	7	

Table 12.3.1. Pesticide Spray Table – Pears

Refer to back of book for key to abbreviations and footnotes.

Pest		Product	Amt/100 gal	Amt/A	REI (hrs)	PHI (days)	Comments (see text)
Petal Fall (continued)							
Pear psylla (*continued*)	*OR*	*Brigade 10WSB		6.4-32 oz/A	12	14	
		or *Brigade 2EC		2.6-12.8 fl oz/A	12	14	
	OR	*Centaur		34.5-46 oz/acre	12	14	
	OR	*Clutch	1.0-1.5 oz/100 gal	4-6 oz/acre	12	7	
	OR	*Danitol 2.4EC		16-21.3 fl oz/A	24	14	
	OR	*Leverage 2.7SE	see label	3.6-4.4 fl oz/A	12	7	
		or *Leverage 360	see label	2.4-2.8 fl oz/A	12	7	
	OR	§M-Pede 49L	1-2 gal/100 gal		12	0	
	OR	§summer oil	1.5-2 gal/100 gal		4	0	
	OR	Provado 1.6F		20 fl oz/A	12	7	
	OR	§Surround 95WP		50 lb/A	4	0	
	OR	Tourismo		12-17 fl oz/A	12	14	
	OR	*Warrior		2.6-5.1 fl oz/A	24	21	
	OR	*Warrior II		1.3-2.5 fl oz/A	24	21	[12.2]
Pear rust mite		*Agri-Mek 0.15EC	2.5-5.0 fl oz/100 gal		12	28	[13.1]
	OR	Nexter 75WS	5.2-10.7 oz/A		12	7	
	OR	Portal 0.4EC		2 pt/acre	12	14	[8.1]
	OR	*Vendex 50WP	6-8 oz/100 gal		48	14	
Plum curculio		Actara 25WDG		4.5-5.5 oz/A	12	35	
	OR	*Asana XL 0.66EC	2.0-5.8 fl oz/100 gal		12	28	
	OR	*Baythroid XL 1E		2.4-2.8 fl oz/A	12	7	
	OR	*Brigade 10WSB		6.4-32 oz/A	12	14	
		or Brigade 2EC		2.6-12.8 fl oz/A	12	14	
	OR	*Guthion 50WS	0.5-0.75 lb/100 gal		14 days(E)	14-21(A)	
	OR	Imidan 70WP	0.75-1 lb/100 gal		72	7	
	OR	*Proaxis 0.5CS		2.6-5.1 fl oz/A	24	21	
	OR	§Surround 95WP		50 lb/A	4	0	[12.6]
	OR	*Warrior 1CS		2.6-5.1 fl oz/A	24	21	
		or *Warrior II 2.08 CS		1.28-2.56 fl oz/A	24	21	
The following pre-mix products are also labeled for use against this pest; however, for best effectiveness and insecticide resistance management, their use should be reserved for situations when multiple pest species present are appropriately matched to the combination of active ingredients and modes of action contained in the product.							
	OR	*Leverage 360	See label	2.4-2.8 fl oz/acre	12	7	
	OR	*Voliam Express	See label	6-12 oz/acre	24	21	
Obliquebanded leafroller		Altacor 35WDG	see label	2.5-4.5 oz/A	4	5	
	OR	Belt 4SC	See label	3-5 fl oz/acre	12	14	
	OR	§Biobit XL 2.1FC		1.5-5.5 pt/A	4	0	
	OR	Delegate 25WG		4.5-7.0 oz/A	4	7	
	OR	§Deliver 18WG		0.5-2 lb/A	4	0	
	OR	§Dipel 10.3DF		0.5-2 lb/A	4	0	

Table 12.3.1. Pesticide Spray Table – Pears

Refer to back of book for key to abbreviations and footnotes.

Pest		Product	Amt/100 gal	Amt/A	REI (hrs)	PHI (days)	Comments (see text)
Petal Fall (continued)							
Obliquebanded leafroller *(continued)*	*OR*	§Entrust 80WP	0.67-1.0 oz/100 gal		4	7	
	OR	Intrepid 2F		8-16 fl oz/A	4	14	
	OR	§Javelin 7.5 WDG		0.5-4 lb/A	4	0	
	OR	*Lannate 2.4L	0.75 pt/100 gal		48-96(E)	7	
		or *Lannate 90SP	0.25 lb/100 gal				
	OR	*Proclaim 5SG	0.8-1.2 oz/100 gal		12 or 48	14	
The following pre-mix products are also labeled for use against this pest; however, for best effectiveness and insecticide resistance management, their use should be reserved for situations when multiple pest species present are appropriately matched to the combination of active ingredients and modes of action contained in the product.							
	OR	*Endigo ZC	See label	5-6 fl oz/acre	24	35	
	OR	*Voliam Xpress	see lable	6-12 fl oz/acre	2	21	
Additional Summer Sprays							
Fire blight (ONLY after a hailstorm)		§Agri-mycin 17WP or Streptrol 17WP or Firewall 17WP	0.5 lb/100 gal		12	30	[2.4]
Pear scab, Fabraea leaf spot, Sooty blotch, Black rot		Topsin M 70WSB	4 oz/100 gal		72	1	
	OR	Thiophanate-methyl 85WDG	3.2oz/100 gal		72	1	
		plus Dithane/*Manzate/Penncozeb as listed for pear scab under Green Cluster			24	BL/77 (A)	[3.6]
	OR	Vintage SC	3 fl oz/100 gal		24	30	
		plus:					
		Dithane/*Manzate/ Penncozeb 75DF	1 lb/100 gal		24	BL/77 (A)	[2.4]
	OR	Flint 50WG	0.67-0.8 oz/100 gal		12	14	[3.4]
	OR	Sovran 50WG	1.0-1.6 oz/100 gal		12	30	
	OR	Pristine 38WG		14.5-18.5 oz/A	12	0	
	OR	Ziram 76DF	1.5-2 lb/100 gal		48	14	
Codling moth		Altacor 35WDG	see label	2.5-4.5 oz/A	4	5	[6.1]
	OR	Assail 30SG		4.0-8.0 oz/A	12	7	[6.1]
	OR	Avaunt 30WDG	See label	5-6 oz/acre	12	28	
	OR	*Baythroid XL 1E		2.0-2.4 fl oz/A	12	7	
	OR	§Biobit XL 2.1FC		1.5-5.5 pt/A	4	0	
	OR	*Calypso 4F	1-2 fl oz/100 gal		12	30	
	OR	§Carpovirusine 0.99SC	0.5-1 pt/100 gal		4	0	
	OR	§Cyd-X 0.06SC	1-6 fl oz/A	1-6 fl oz/A	4	0	
	OR	*Danitol 2.4EC	16-21.3 fl oz/A	16-21.3 fl oz/A	24	14	
	OR	Delegate 25WG	4.5-7.0 oz/A	4.5-7.0 oz/A	4	7	
	OR	§Deliver 18WG	0.5-2 lb/A	0.5-2 lb/A	4	0	
	OR	§Dipel 10.3DF	0.5-2 lb/A		4	0	
	OR	§Entrust 80WP	0.67-1.0 oz/100 gal		4	7	

Table 12.3.1. Pesticide Spray Table – Pears

Refer to back of book for key to abbreviations and footnotes.

Pest		Product	Amt/100 gal	Amt/A	REI (hrs)	PHI (days)	Comments (see text)
Additional Summer Sprays (continued)							
Codling moth (*continued*)	*OR*	*Guthion 50WS	0.5-0.75 lb/100 gal		14 days (E)	14-21 (A)	
	OR	Imidan 70WP	0.75-1 lb/100 gal		72	7	
	OR	§Javelin 7.5WDG		0.5-4 lb/A	4	0	
	OR	*Leverage 2.7SE		3.6-4.4 fl oz/A	12	7	
		or *Leverage 360		2.4-2.8 fl oz/acre	12	7	
	OR	Virosoft PC4	See label	2-3.2 fl oz/acre	4	0	
	OR	(§)Pheromone disruption: Checkmate CM-F		2.4-4.8 fl oz/acre	4	0	
The following pre-mix products are also labeled for use against these pests; however, for best effectiveness and insecticide resistance management, their use should be reserved for situations when multiple pest species present are appropriately matched to the combination of active ingredients and modes of action contained in the product.							
		*Endigo ZC	see label	5-6 fl oz/A	24	35	
		*Leverage 360	see label	2.4-2.8 fl oz/A	12	7	
		*†Voliam Xpress	see label	6-12 fl oz/A	24	21	
Comstock mealybug		Actara 25WDG		4.5-5.5 oz/A	12	35	[7.1, 7.2]
	OR	*Admire Pro 4.6SC	see label	7.0 fl oz/A	12	7	
	OR	Assail 30SG		4.0-8.0 oz/A	12	7	
	OR	*Calypso 4F	1-2 fl oz/100 gal		12	30	
	OR	*Centaur		34.5-46 oz/acre	12	14	[12.5]
	OR	*Diazinon 50WP	1 lb/100 gal		96	21	
	OR	Movento 240SC	see label	6-9 fl oz/A	24	7	
	OR	Portal 0.4EC	see label	2 pt/A	12	14	
European red mite,		*Agri-Mek 8SC	0.5-1 fl oz/100 gal	2.25-4.25 fl oz/A	12	28	[8.1], [13.1]
Twospotted spider mite,	*OR*	Apollo 4SC		4-8 oz/A	12	21	
Pear rust mite	*OR*	*Brigade 10WSB		12.8-32 oz/A	12	14	
		or *Brigade 2EC		5.12-12.8 fl oz/acre			
	OR	Envidor 2SC		16-18 fl oz/A	12	7	
	OR	Portal 5EC		2 pt/A	12	14	
	OR	Kanemite 15SC		21-31 fl oz/A	12	14	
	OR	Nexter 75WS		4.4-10.7 oz/A	12	7	
	OR	Onager 1EC		12-24 fl oz/A	12	28	
	OR	Portal 0.4EC	see label	2 pt/A	12	14	
	OR	Savey 50DF		3-6 oz/A	12	28	
	OR	*Vendex 50WP	6-8 oz/100 gal		48	14	
	OR	Zeal 72WS		2-3 oz/A	12	14	
Obliquebanded leafroller		§Agree WG 3.8WS		1-2 lb/A	4	0	[10.2]
	OR	Altacor 35WDG	see label	2.5-4.5 oz/A	4	5	
	OR	*Baythroid Xl 1E		2.4-2.8 fl oz/A	12	7	

Table 12.3.1. Pesticide Spray Table – Pears

Refer to back of book for key to abbreviations and footnotes.

Pest		Product	Amt/100 gal	Amt/A	REI (hrs)	PHI (days)	Comments (see text)
Additional Summer Sprays (continued)							
Obliquebanded leafroller (*continued*)	*OR*	*Belt 4SC	see label	3-5 fl oz/A	12	14	
	OR	§Biobit XL 2.1FC		1.5-5.5 pt/A	4	0	
	OR	Delegate 25WG		4.5-7.0 oz/A	4	7	
	OR	§Deliver 18WG		0.5-2 lb/A	4	0	
	OR	§Dipel 10.3DF		0.5-2 lb/A	4	0	
	OR	§Entrust 80WP	0.67-1.0 oz/100 gal		4	7	
	OR	Intrepid 2F		8-16 fl oz/A	4	0	
	OR	§Javelin 7.5WDG		0.5-4 lb/A	4	0	
	OR	*Lannate 2.4L	0.75 pt/100 gal		48-96(E)	7	
		or *Lannate 90SP	0.25 lb/100 gal				
	OR	*Proclaim 5SG	0.8-1.2 oz/100 gal		12	14	
The following pre-mix products are also labeled for use against this pest; however, for best effectiveness and insecticide resistance management, their use should be reserved for situations when multiple pest species present are appropriately matched to the combination of active ingredients and modes of action contained in the product.							
		*†Endigo ZC	see label	5-6 fl oz/A	24	35	
	OR	*Leverage 360	see label	2.4-2.8 fl oz/A	12	7	
	OR	*Voliam Xpress	see label	6-12 fl oz/A	24	21	
Pear psylla		Choose from materials listed under Petal Fall, except for Esteem					[12.5]
Pearleaf blister mite		Sevin XLR Plus, 4F		1.5-3 qt/A	12	3	[14.2]
		or Sevin 80S, *80WS		1.88-3.75 lb/A			
	OR	oil	1-1.5 gal/100 gal				
		plus					
		*Diazinon 50WP	1 lb/100 gal		96	21	
	OR	oil	1-1.5 gal/100 gal				
		plus					
		*Thionex 50WP	0.5-0.75 lb/100 gal	4 lb/acre	20 days	20	
		or *Thionex 3EC	0.33-0.5 qt/100gal	2.67 qt/acre	7 days	7	
Redbanded leafroller		§Agree WG 3.8WS		1-2 lb/A	4	0	[16.1]
	OR	*Altacor 35WDG		2.5-4.5 oz	4	5	
	OR	*Baythroid XL 1E		2.4-2.8 fl oz/A	12	7	
	OR	*†Belt 4SC	see label	3-5 fl oz/A	12	14	
	OR	§Biobit XL 2.1FC		1.5-5.5 pt/A	4	0	
	OR	Delegate 25WG		4.5-7.0 oz/A	4	7	
	OR	§Deliver 18WG		0.5-2 lb/A	4	0	
	OR	§Dipel 10.3DF		0.5-2 lb/A	4	0	
	OR	*Guthion 50WS	0.5-0.75 lb/100 gal		14 days (E)	14-21 (A)	
	OR	Imidan 70WP	0.75-1 lb/100 gal		72	7	
	OR	§Javelin 7.5WDG		0.5-4 lb/A	4	0	
	OR	*Proclaim 5SG	0.8-1.2 oz/100 gal		12	14	
The following pre-mix products are also labeled for use against this pest; however, for best effectiveness and insecticide resistance management, their use should be reserved for situations when multiple pest species present are appropriately matched to the combination of active ingredients and modes of action contained in the product.							

Table 12.3.1. Pesticide Spray Table – Pears

Refer to back of book for key to abbreviations and footnotes.

Pest		Product	Amt/100 gal	Amt/A	REI (hrs)	PHI (days)	Comments (see text)
Additional Summer Sprays (continued)							
Redbanded leafroller *(continued)*		*Leverage 360	see label	2.4-2.8 fl oz/A	12	7	
	OR	*Voliam Xpress		6-12 oz	24	21	
Spotted wing Drosophila		Delegate 25WG	see label	4.5-7 oz/A	4	7	
	OR	§Entrust 80WP	see label	1.5-3 oz/A	4	7	
	OR	*Imidan 70WS	0.75-1 lb/100 gal	2.13-5.75 lb/A	7 days	7	
Stink bugs, including Brown marmorated stink bug		*†Actara 25WDG	see label	4.5-5.5 oz/A	12	35	
	OR	*Asana XL 0.66EC	2.0-5.8 fl oz/100 gal	4.8-14.5 fl oz/A	12	21	
	OR	*Baythroid XL 1EC	see label	2-2.4 fl oz/A	12	7	
	OR	*Brigade 2EC	see label	2.6-12.8 fl oz/A	12	14	
		or *Brigade 10WSB	see label	6.4-32 oz/A	12	14	
	OR	*Danitol 2.4EC	see label	10.7-21.3 fl oz/A	24	14	
	OR	*Lannate 2.4LV	see label	2.25 pt/A	96	7	
		or *Lannate 90SP	see label	0.75 lb/A	96	7	
	OR	*Proaxis 0.5CS	see label	2.6-5.1 fl oz/A	24	21	
	OR	§Surround 95WP	see label	25-50 lb/A	4	0	
	OR	*†Vydate 2L	see label	1.5-3 pt/A	48	14	
	OR	*Warrior 1CS	see label	2.6-5.1 fl oz/A	24	21	
		or *Warrior II 2.08CS	see label	1.28-2.56 fl oz/A	24	21	
The following pre-mix products are also labeled for use against this pest; however, for best effectiveness and insecticide resistance management, their use should be reserved for situations when multiple pest species are present and appropriately matched to the combination of active ingredients and modes of action contained in the product.							
		*†Endigo ZC	see label	5-6 fl oz/A	24	35	
	OR	*Leverage 360	see label	2.4-2.8 fl oz/A	12	7	
	OR	*†Voliam Xpress	see label	6-12 fl oz/A	24	21	

Table 12.3.2. Growth Regulator Uses in Pears.

Refer to back of book for key to abbreviations and footnotes.

Timing	Product	Concentration	Rate of Formulated Product
Chemical Thinning			
Petal Fall to 5-7 days after petal fall	Amid-Thin W	25-50 ppm	4-8 oz/100 gal
For thinning Bartlett and Bosc. Apply at petal fall or within 5-7 days after petal fall.			
7-28 days after full bloom	Fruitone-N or Fruitone-L	10-15 ppm	4-6 oz/100 gal
Directions for use on Bartlett and Bosc pears. NAA is more effective at early timings and should be applied as soon as fruit set is apparent for greatest success. Late applications may result in reduced fruit size. Do not apply when temperature is below 60°F or above 85°F. NAA will not usually adequately thin Bartlett, but the addition of a surfactant will improve thinning.			
Fruit Size 8-14 mm(7-28 days after full bloom) Maxcel, RiteWay 125-200 ppm 4-6 oz/100 gal			
Do not apply when temperature is below 60°F or above 85°F.			

Table 12.3.2. Growth Regulator Uses in Pears.

Refer to back of book for key to abbreviations and footnotes.

Timing	Product	Concentration	Rate of Formulated Product
Induction of Lateral Branching in Young Trees			
1-2" of terminal shoot growth	Promalin, Perlan, Typy	125-1000 ppm	0.25-2 pt/5 gal
Include a non-ionic surfactant and apply as a directed spray to areas where additional branching is desired. This practice is more effective in the second and third growing seasons after planting. Response on weak or low-vigor trees is usually disappointing. For nursery stock treat after trees have reached a terminal height at which lateral branching is desired.			
Preharvest Fruit Drop Control			
1-2 weeks before anticipated harvest	ReTain		0.74 lb/acre or 333 g/acre or (1 pouch)
Apply in sufficient water to ensure thorough but not excessive coverage. An organosilicone surfactant (12 oz/100 gal) must be used with ReTain.			
5-7 days before harvest	Fruitone-N	10-15ppm	4-6 oz /100 gal
Apply 7 days before harvest on D'Anjou, Bosc, and Bartlett. Make separate sprays to early and late maturing varieties.			

* To convert ounces to grams multiply ounces by 28.3. To convert fluid ounces to milliliters multiply fluid ounces by 29.57.