

# Fruit Production Recommendations 2010-2011

Ontario Ministry of Agriculture, Food & Rural Affairs

## Chapter 7: Tender Fruit



### Pear Calendar

Read the product label and follow all safety precautions.

Consult the product label for suggested water volumes. Otherwise, use enough water to ensure thorough spray coverage. Where the product rate is listed in amount per 1,000 L and if a water volume is not provided on the label, use enough water to wet the foliage to the near drip point.

Products are listed by fungicide and insecticide group. Use products from different groups to prevent pest resistance. For resistance management, refer to *Pest Resistance to Insecticides, Fungicides, Miticides*, page 23.

For preharvest interval, re-entry period, maximum number of applications and chemical group, see Table 7-9. *Products Used on Pears*, page 178.

Diseases and Insects	Products	Rate	Comments
<b>Dormant</b>			
Scale insects Pear psylla	Superior 70 Oil	20 L/1,000 L water	Use 2,000–3,000 L of water ha. Good coverage is essential. Do not apply full rate of oil more than once per season.
<b>Green tip</b>			
Scab	Supra Captan 80 WDG or Maestro 80 DF  Dikar  Flint 50 WG Sovran Pristine WG  Scala SC  Equal 65 WP  Serenade MAX	3.75 kg/ha 3.75 kg/ha  6.75 kg/ha  140 g/ha 240 g/ha 1.0-1.2 kg/ha  1.0 L/ha  3.25 kg/ha  3.0-6.0 kg/ha	Start scab control early and repeat the spray if weather remains wet. Captan or Maestro: Do not use on d'Anjou pears. Do not use within 14 days of an application of Superior Oil. Dikar: If used at 10 day intervals, controls pear scab and pear psylla nymphs. It also suppresses European red mite and rust mite populations. Higher water volumes aid in mite suppression. Sovran, Flint and Pristine: Not recommended for use at this stage due to resistance management considerations and label restrictions on the maximum number of allowable sprays. These materials should not be used until the immediate prebloom growth stage or later, when they are likely to be most beneficial. Scala: Do not apply postbloom. Serenade MAX: Provides suppression rather than control of pear scab. See Table 2-6. <i>Efficacy Ratings for Pesticides</i> , page 12 and notes on <i>Bacillus subtilis</i> ( <i>Serenade ASO</i> , <i>Serenade MAX</i> ), page 14.
European red mite Pear psylla	Superior 70 Oil	20 L/1,000 L water	Best applied at or near <b>Green tip</b> for mites. Use 2,000–3,000 L of water per ha. Good coverage is essential. Oil does not control rust mite. Do not apply full rate of oil more than once per season.
Pear psylla	Movento 240 SC Ambush 500 EC Surround WP	365 mL/ha 400 mL/ha 50.0 kg/ha	<b>Surround:</b> Begin spray program before overwintering adults are active. Make two applications at 50 kg/ha, 7 days apart, to establish a base layer. Continue applications at 7–14 day intervals. Surround may interfere with optimum bee activity. Do not apply Surround during the green cluster bud to petal fall stage. See notes on <i>Kaolin Clay</i> ( <i>Surround WP</i> ), page 17. Movento: Has slow activity; control may not be apparent for 2–3 weeks. Under high pressure a second application may be necessary 2 weeks later. Do not use when fruit is present due to

Diseases and Insects	Products	Rate	Comments
			the possibility of injury. See the Movento label for additional details. If psylla pressure is high, use the higher labelled rate of 435 mL/ha. Do not exceed 1.83 L/ha per year.
Oriental fruit moth	Isomate-M Rosso Isomate-M 100	500 dispensers/ha 250 dispensers/ha	<p>Pheromone mating disruption products will not control other pests that may be present in the orchard. Initial OFM population must be low. Use in square or rectangular orchard blocks at least 4 ha in size. Apply before moth flight begins. For more information on mating disruption, see <i>Using mating disruption in fruit crops</i>, page 19 and <i>Using mating disruption to control oriental fruit moth (Isomate-M Rosso and Isomate-M 100)</i>, page 19 and OMAFRA Factsheet <i>Mating Disruption for Management of Oriental Fruit Moth in Stone and Pome Fruit</i>, Order No. 04-029.</p> <p>Isomate-M 100: Make a second application 75–80 days after the first.</p> <p>Isomate-M Rosso: Provides mating disruption for up to 120 days. In crops with long field seasons, make a second application.</p> <p>If desired, use both an insecticide and mating disruption for managing first generation OFM (see <b>Petal fall</b>).</p>
<b>White bud (white petals showing on flowers)</b>			
Scab	Flint 50 WG Sovran Pristine WG  Equal 65 WP  Supra Captan 80 WDG or Maestro 80 DF  Dikar  Scala SC  Serenade MAX	140 g/ha 240 g/ha 1.0–1.2 kg/ha  3.25 kg/ha  3.75 kg/ha 3.75 kg/ha  6.75 kg/ha  1.0 L/ha  3.0-6.0 kg/ha	<p>Start scab control early and repeat the spray if weather remains wet.</p> <p>Sovran, Flint and Pristine: Make no more than two consecutive applications, then rotate to a different group. Do not rotate within this group. Where disease pressure is high, use up to 360 g/ha of Sovran. Maximum four applications Sovran or Flint per season.</p> <p>Captan or Maestro: Do not use on d’Anjou pears. Do not use within 14 days of an application of Superior Oil.</p> <p>Dikar: If used at 10 day intervals, controls pear scab and pear psylla nymphs. It also suppresses European red mite and rust mite populations. Do not use Dikar within 45 days of harvest. Higher water volumes aid in mite suppression.</p> <p>Scala: Do not apply postbloom.</p> <p>Serenade MAX: Provides suppression rather than control of pear scab. See Table 2-6. <i>Efficacy Ratings for Pesticides</i>, page 12 and notes on <i>Bacillus subtilis (Serenade ASO, Serenade MAX)</i>, page 14.</p>
Rust mite European red mite	Carzol SP  Kanemite 15 SC	1.1 kg/ha  2.1 L/ha	<p><b>Carzol:</b> Harsh on beneficial mites and honeybees.</p> <p>Kanemite: Not effective on rust mites.</p>
Pear psylla	Assail 70 WP  Movento 240 SC  Ambush 500 EC  Guthion 50 WSB or Sniper  Thionex 50 W  Pyramite or Nexter	120 g/ha  365 mL/ha  400 mL/ha  see label see label  6.75 kg/ha  600 g/ha 600 g/ha	<p>To avoid resistance problems, pyrethroids are not recommended at this stage. Refer to comments at <b>First cover</b>.</p> <p>Guthion or Sniper: Also controls green fruitworm. Maximum three applications per season.</p> <p>Pyramite, Nexter: Maximum two applications per season. There is little commercial experience with these products for psylla.</p> <p>Assail: Maximum four applications per season.</p> <p>Movento: Has slow activity; control may not be apparent for 2–3 weeks. Under high pressure a second application may be necessary 2 weeks later. Do not use when fruit is present due to the possibility of injury. See the Movento label for additional details. If psylla pressure is high, use the higher labelled rate of 435 mL/ha. Do not exceed 1.83 L/ha per year.</p>
Plant bugs	Thionex 50 W	4.5 kg/ha	This spray also helps control psylla.

Diseases and Insects	Products	Rate	Comments
Codling moth	Isomate-CFM/OFM TT	200–500 dispensers/ha	Reduces mating of codling moth (CM) and oriental fruit moth (OFM). Use in square or rectangular orchard blocks at least 4 ha in size. Initial pest populations must be low for good results. Apply prior to flight of codling moth, no later than petal fall. Tie dispensers to the upper third of canopy. Use a double rate of dispensers at edges of orchards. Most orchards will require insecticides applied for one or both CM generations to avoid unacceptable levels of damage. Monitor using traps baited with high dose pheromone lures for codling moth. Product lasts for up to 150 days for CM and up to 90 days for OFM. See <i>Using mating disruption in fruit crops</i> , page 19 and <i>Using mating disruption to control codling moth and oriental fruit moth (Isomate-CFM/OFM TT)</i> , page 20.
<b>Bloom</b>			
<b>There are special pollination requirements for pears. See <i>Pollination Requirements for Fruit Crops</i> at <a href="http://www.ontario.ca/crops">www.ontario.ca/crops</a></b>			
<b>DO NOT APPLY INSECTICIDES WHILE PEARS ARE IN BLOOM. SEE BEE POISONING ON PAGE 214.</b>			
Fire blight	Streptomycin 17 Serenade MAX	600 g/1,000 L 3.0–6.0 kg/ha	Sprays are most effective when applied dilute (high volumes of water) prior to a wetting period. Use alone for best results. Because Streptomycin 17 is UV light sensitive, it is effective for only 2–3 days. If warm, wet conditions (above 20°C) prevail, two to three sprays during bloom may be required for fire blight control. To avoid resistance, use a maximum of three sprays per season. For more information, refer to OMAFRA Factsheet <i>Fire Blight of Apple and Pear in Ontario</i> , Order No. 02-011. Serenade MAX: Provides suppression rather than control of fire blight. See Table 2-6. <i>Efficacy Ratings for Pesticides</i> , page 12 and notes on <i>Bacillus subtilis (Serenade ASO, Serenade MAX)</i> , page 14.
Scab	Flint 50 WG Sovran Pristine WG Equal 65 WP Supra Captan 80 WDG or Maestro 80 DF Dikar Scala SC Serenade MAX	140 g/ha 240 g/ha 1.0–1.2 kg/ha 3.25 kg/ha 3.75 kg/ha 3.75 kg/ha 6.75 kg/ha 1.0 L/ha 3.0–6.0 kg/ha	<b>Sovran, Flint and Pristine:</b> No more than two consecutive applications, then rotate to a different group. Do not rotate within this group. Where disease pressure is high, use up to 360 g/ha of Sovran. Captan or Maestro: Do not use on d'Anjou pears. Dikar: If used at 10 day intervals, controls pear scab and pear psylla nymphs. It also suppresses European red mite and rust mite populations. Do not use Dikar within 45 days of harvest. Higher water volumes aid in mite suppression. Scala: Do not apply postbloom. Serenade MAX: Provides suppression rather than control of pear scab. See Table 2-6. <i>Efficacy Ratings for Pesticides</i> , page 12 and notes on <i>Bacillus subtilis (Serenade ASO, Serenade MAX)</i> , page 14.
<b>Petal fall</b>			
Plum curculio	Actara 25 WG Calypso 480 SC Guthion 50 WSB or Sniper	385 g/ha 440 mL/ha see label see label	<b>Actara:</b> Do not apply when bees are in the orchard. After an Actara application, wait at least 5 days before placing bee hives in the orchard. Calypso: Research indicates that application of Calypso at petal fall plus 3 days is the optimal timing for plum curculio. However, if monitoring indicates plum curculio is in the orchard prior to this timing, then insecticides should be applied at petal fall.

Diseases and Insects	Products	Rate	Comments
Pear psylla	Agri-Mek 1.9% EC Assail 70 WP Actara 25 WG Movento 240 SC Ambush 500 EC Thionex 50 W Guthion 50 WSB or Sniper Pyramite or Nexter	1.0 L/ha 120 g/ha 385 g/ha 365 mL/ha 400 mL/ha 6.75 kg/ha see label see label 600 g/ha 600 g/ha	<b>Agri-Mek:</b> Do not use within 14 days of a Captan or Maestro application. Apply no later than 21 days after petal fall for best results. Apply Agri-Mek with 10 L Superior Oil and a minimum of 1,000 L of water per ha, when most mites are in the nymph stage. May cause russetting to d'Anjou and other sensitive varieties. Maximum one application per season. Alternate yearly with other insecticides. Agri-Mek will not control plum curculio. <b>Actara:</b> Do not apply when bees are in the orchard. After an Actara application, wait at least 5 days before placing beehives in the orchard. <b>Movento:</b> Has slow activity; control may not be apparent for 2–3 weeks. Under high pressure a second application may be necessary 2 weeks later. Do not use when fruit is present due to the possibility of injury. See the Movento label for additional details. If psylla pressure is high, use the higher labelled rate of 435 mL/ha. Do not exceed 1.83 L/ha per year. <b>Pyramite, Nexter:</b> There is little commercial experience with these products for psylla.
Obliquebanded leafroller Green fruitworm	Dipel 2X DF or Foray 48BA or Bioprotec CAF Success 480 SC or Entrust 80 W Delegate WG Intrepid 240 F Altacor Imidan 50 WP Guthion 50 WSB or Sniper	1.125 kg/ha 2.8 L/ha 4.0 L/ha 182 mL/ha 109 g/ha 420 g/ha 750 mL/ha 285 g/ha 3.75 kg/ha see label see label	For overwintering obliquebanded leafroller apply at petal fall. Spray in orchards with historical pest problems or high pest pressure (1–2% of the terminals or buds have larvae or damage). OBLR are resistant to organophosphate insecticides in most commercial apple orchards. Cross-resistance to pyrethroids, Confirm and Intrepid is possible. Avoid treating sequential generations with products from the same chemical group. See <i>Strategies for managing resistance to insecticides</i> , page 23. Dipel, Foray, Bioprotec (B.t. products): Make two applications at 5–7 day intervals if activity of the larvae is extended. For best results when using B.t. products, acidify spray mix to below pH 7.0 and apply at dusk or on overcast days. See <i>Biopesticides and reduced risk products for insect control</i> , page 17. Place pheromone traps in orchards at petal fall to monitor OBLR adults.
Rust mite European red mite	Carzol SP Envidor 240 SC Kanemite 15 SC	1.1 kg/ha 750 mL/ha 2.1 L/ha	To control rust mite and prevent russetting fruit, apply a miticide at prebloom or petal fall. Alternate miticides. Carzol: Is harsh on beneficial mites and honeybees. Envidor: works slowly, especially in cool weather. Control may not be apparent for 2–3 weeks. Apply before mite populations build up. Kanemite: Is not effective on rust mites.
Leaf spots Scab	Use one of the fungicides listed for scab at <b>Green tip</b> .		If wet weather persists, additional sprays will be needed for scab control before first cover. Where there is a problem, spray at petal fall and first cover. A dilute spray is necessary for good control.
<b>Special spray (when monitoring indicates the need at Petal fall)</b>			
Codling moth (first generation)	Assail 70 WP Calypso 480 SC Altacor Delegate WG Guthion 50 WSB or Sniper Imidan 50 WP	170 g/ha 440 mL/ha 215 g/ha 420 g/ha see label see label 3.75 kg/ha	Timing is critical for effective control. Use pheromone traps to time sprays. Apply insecticides between 83–138 DDC (base 10°C) after first sustained moth catch. See <i>Degree-day modelling and determining a biofix</i> , page 8. Imidan, Guthion, Sniper (OP insecticides): Apply for first generation codling moth at 138 DDC. Assail and Calypso: Apply 1–2 days earlier at (111–138 DDC) than OP insecticides. Calypso/Assail residues last 10–14 days. Do not apply as a border spray. Altacor and Delegate: Apply at 138 DDC. Residues last 10–14 days. Do not apply as a border spray.

Diseases and Insects	Products	Rate	Comments
<b>First cover</b>			
Pear psylla	Assail 70 WP Actara 25 WG  Decis 5 EC Ripcord 400 EC or Up-Cyde 2.5 EC Perm-Up Matador 120 EC or Silencer 120 EC Ambush 500 EC or Pounce  Agri-Mek 1.9% EC  Guthion 50 WSB or Sniper  Thionex 50 W  Pyramite or Nexter  Surround WP	120 g/ha 385 g/ha  350 mL/ha 175 mL/ha 280 mL/ha 520 mL/ha 83 mL/ha 83 mL/ha 400 mL/ha 520 mL/ha  1.0 L/ha  see label see label  6.75 kg/ha  600 g/ha 600 g/ha  50.0 kg/ha	Apply when the majority of the population is in early instar stages. Where plum curculio is a later season problem, use one of the materials recommended at <b>Petal fall</b> . Actara: Do not apply when bees are in the orchard. Perm-Up, Silencer, Up-Cyde: Apply when most of the population is in early instar stages. Decis, Ripcord, Pounce, Matador, Perm-Up, Silencer, Up-Cyde: Resistance to these pyrethroid insecticides was recorded as widespread in the past. Resistance to these products may still be present. Agri-Mek: Apply no later than 21 days after petal fall. Apply with 10 L Superior Oil and a minimum of 1,000 L of water per ha. Apply when most mites are in the nymph stage. May cause russetting to d'Anjou and other sensitive varieties. Do not use oil within 14 days of a Captan or Maestro application. Pyramite, Nexter: There is little commercial experience with these products for psylla. Surround: See notes on <i>Kaolin Clay (Surround WP)</i> , page 17.
Scab	Use one of the fungicides listed under <b>Green tip</b> . Reduce rate of Equal to 2.25 kg/ha in cover sprays.		
<b>Special spray (when monitoring indicates the need at First cover)</b>			
Blister mite	Thionex 50 W  Sevin XLR	4.5 kg/ha  6.25 L/ha	
<b>Summer sprays</b>			
Pear psylla	Assail 70 WP  Decis 5 EC Ripcord 400 EC or Up-Cyde 2.5 EC Matador 120 EC or Silencer 120 EC Perm-Up Ambush 500 EC or Pounce  Pyramite or Nexter  Thionex 50 W  Guthion 50 WSB or Sniper  Surround WP	120 g/ha  350 mL/ha 175 mL/ha 280 mL/ha 83 mL/ha 83 mL/ha 520 mL/ha 400 mL/ha 520 mL/ha  600 g/ha 600 g/ha  6.75 kg/ha  see label see label  50.0 kg/ha	Apply when majority of the population is in early instar stages. Do not exceed maximum number of applications for any product. See Table 7-9. <i>Products Used on Pears</i> , page 178. Decis, Ripcord, Pounce, Matador, Perm-Up, Silencer, Up-Cyde: Apply when most of the population is in early instar stages. Psylla resistance to pyrethroid insecticides may be present. Surround: See notes on <i>Kaolin Clay (Surround WP)</i> , page 17.

Diseases and Insects	Products	Rate	Comments
Obliquebanded leafroller	Dipel 2X DF or Foray 48BA or Bioprotec CAF  Success 480 SC or Entrust 80 W Delegate WG  Intrepid 240 F  Altacor  Imidan 50 WP Guthion 50 WSB or Sniper	1.12 kg/ha 2.8 L/ha 4.0 L/ha  182 mL/ha 109 g/ha 420 g/ha  750 mL/ha  285 g/ha  3.75 kg/ha see label see label	Place pheromone traps in orchards by June to monitor adult populations. Insecticides for summer generation larvae should be applied at 240–280 DDC after first sustained moth catch (base 6.1°C). When applied for leafroller control, these products also control other leaf-feeding caterpillars. See <i>Degree-day modelling and determining a biofix</i> , page 8.  OBLR are resistant to organophosphate insecticides in most commercial apple orchards. Cross-resistance to pyrethroids, Confirm, and Intrepid is possible. Avoid treating sequential generations with the products from the same chemical group. See Table 2-12. <i>Insecticide and Miticide Groups Based on Sites of Action</i> , page 27.  Dipel, Foray, or Bioprotec: Make two applications at 5–7 day intervals if activity of the larvae is extended. For best results acidify spray mix to below pH 7.0 and apply at dusk or on overcast days. See <i>Biopesticides and reduced risk products for insect control</i> , page 17.  Success, Entrust: Monitor populations and re-apply as necessary on a 7–10 day schedule. Use a maximum of three applications per season.  Intrepid, Confirm: These products provide suppression of OBLR at this timing. Apply a second spray 10–14 days after the first application. See label for specific timing. Use a maximum of two applications per season.  Altacor: Be aware of the 14 days to harvest interval.
Mites	Envidor 240 SC  Pyramite or Nexter  Carzol SP  Kanemite 15 SC	750 mL/ha  300 g/ha 300 g/ha  1.1 kg/ha  2.1 L/ha	Examine orchards for red mite and rust mite injury about July 15–20 or 10–15 days after using a pyrethroid. See Table 7-9. <i>Products Used on Pears</i> , page 178, for preharvest intervals. Alternate miticides.  Envidor: Works slowly, especially in cool weather. Control may not be apparent for 2–3 weeks. Apply before mite populations build up.  Carzol: Harsh on beneficial mites.  Kanemite: Not effective on rust mites.
<b>Second cover</b>			
Oriental fruit moth	Assail 70 WP Calypso 480 SC  Altacor  Delegate WG  Decis 5 EC	240 g/ha 440 mL/ha  215 g/ha  420 g/ha  250 mL/ha	Begin applications at egg hatch, usually 3–6 days after peak OFM flight as indicated by regional trap catches. Alternate products from different groups to prevent the development of resistance. See Table 7-9. <i>Products Used on Pears</i> , page 178.  Decis: Maximum three sprays per season.  Assail: For optimum activity, use the 240 g/ha rate. Apply in a minimum spray volume of 1,000 L/ha. Do not apply more than once every 12 days. Will also control plum curculio. Maximum four applications per season.  Altacor and Delegate: Apply at first egg hatch, 50–100 degree days C (base 7.2°C) after biofix (first sustained moth catch). See <i>Degree-day modelling and determining a biofix</i> , page 8. Monitor populations and reapply 10–14 days later if required. Comply with the 14 days to harvest interval.  For resistance management, if more than one spray is required for this generation, use a product from the same chemical group. For subsequent generations rotate to another chemical group.
Scab	Use one of the fungicides listed under <b>Green tip</b> . Reduce rate of Equal to 2.25 kg/ha in cover sprays. Check preharvest intervals on Table 7-9. <i>Products Used on Pears</i> , page 178.		

Diseases and Insects	Products	Rate	Comments
Sooty blotch	Supra Captan 80 WDG or Maestro 80 DF	3.75 kg/ha 3.75 kg/ha	Spray twice, two weeks apart. Do not use Captan or Maestro on d'Anjou pears.
	Flint 50 WG Pristine WG	140 g/ha 600-800 g/ha	
<b>Special sprays (when monitoring indicates the need about mid-Aug. and early Sept.)</b>			
Codling moth (second generation)	Assail 70 WP	170 g/ha	Codling moth can infest pear as maturation and ripening begins. Bosc pears can be heavily infested and may require two preharvest sprays about 2 weeks apart. Timing is critical for effective control. Use pheromone traps to time sprays. For second generation codling moth, spray at 611 to 694 DDC (base 10°C) after first generation sustained moth catch. See <i>Degree-day modelling and determining a biofix</i> , page 8. Assail: Apply 1–2 days earlier than OP insecticides (639-667 DDC). Assail residues last 10–14 days. Do not apply as a border spray. Imidan, Guthion, Sniper: Apply at 667–694 DDC. Do not apply as a border spray. Delegate and Altacor: Apply at 667–694 DDC. Do not apply as a border spray.
	Altacor	215 g/ha	
	Delegate WG	420 g/ha	
	Imidan 50 WP Guthion 50 WSB or Sniper	3.75 kg/ha see label see label	
Oriental fruit moth	Decis 5 EC	250 mL/ha	For Bosc, d'Anjou and Bartlett a spray 7–10 days prior to harvest is recommended in orchards adjacent to or near peaches. Altacor and Delegate: Apply at first egg hatch, 50–100 degree days C (base 7.2°C) after biofix (first sustained moth catch). See <i>Degree-day modelling and determining a biofix</i> , page 8. Monitor populations and reapply 10–14 days later if required. Comply with the 14 days to harvest interval. For resistance management, if more than one spray is required for this generation, use a product from the same chemical group. For subsequent generations rotate to another chemical group.
	Assail 70 WP	240 g/ha	
	Altacor	215 g/ha	
	Delegate WG	420 g/ha	
<b>Postharvest fruit treatment</b>			
Blue mould	Mertect SC	500 mL/500 L water	Postharvest treatment may be necessary during wet harvest seasons. These treatments will prolong storage time while providing control of postharvest diseases. Mertect: For use in dip tank or drencher. Continuous agitation required. Follow label instructions. Does not control any blue mould ( <i>Penicillium</i> ) or grey mould ( <i>Botrytis</i> ), which is resistant to benzimidazole fungicides (e.g. Benlate). Scholar: Scholar also controls grey mould. See label for dip and drench instructions.
	Scholar 50 WP	227 g/378 L water	

Table 7-9. Products Used on Pears

Use this table as a guide but refer to product label for specific information.

The **preharvest interval** is the number of days between the last spray and first harvest.

The **re-entry period** is the minimum interval that must be observed between the application of the pesticide and work in the treated crop without protective equipment. If no re-entry period is stated on the label, assume the spray solution must be dry before re-entry can occur.

The **maximum number of applications** is the labelled maximum number for the growing season and may be higher than what is recommended for resistance management or for the preservation of beneficial insects.

Product name	Registration number	Common name	Group	Preharvest interval	Minimum re-entry	Maximum number of applications per season
<b>Products used for control or suppression of insects and mites</b>						
Actara 25 WG	28408	thiamethoxam	4	60 days	12 hours	2
Agri-Mek 1.9% EC	24551	abamectin	6	28 days		1 or 2 (max. 1.5 L/ha)
Altacor	28981	chlorantraniliprole	28	14 days	12 hours	3
Ambush 500 EC	14882	permethrin	3	7 days		
Assail 70 WP	27128	acetamiprid	4	7 days	12 hours	4
Bioprotec CAF	26854	<i>Bacillus thuringiensis</i>	11	1 day		
Calypso 480 SC	28429	thiacloprid	4	30 days	12 hours	3 (max. 875 mL/ha)
Carzol SP	11144	formetanate hydroxychloride	1A	1 day		4.48 kg/ha after calyx
Decis 5 EC	22478	deltamethrin	3	7 days		3
Delegate WG	28778	spinetoram	5	7 days	12 hours	3
Dipel 2X DF	26508	<i>Bacillus thuringiensis</i>	11	1 day		
Entrust 80 W	27825	spinosad	5	7 days		3
Envidor 240 SC	28051	spirodiclofen	23	7 days	12 hours	1
Foray 48BA	24978	<i>Bacillus thuringiensis</i>	11	1 day		
Guthion 50 WSB	21374	azinphosmethyl	1B	14–21 days <sup>1</sup>	14 days/30 days <sup>2</sup>	3
Imidan 50 WP	23006	phosmet	1B	14 days	7 days/14 days <sup>3</sup>	5
Intrepid 240 F	27786	methoxyfenozide	18	14 days	12 hours	2
Kanemite 15 SC	28641	acequinocyl	20B	14 days	12 hours	4.1 L/ha
Matador 120 EC	24984	lambda-cyhalothrin	3	7 days	24 hours	1
Movento 240 SC	28593	spirotetramat	23	7 days	12 hours	
Nexter	25135	pyridaben	21	25 days	24 hours	2
Perm-Up	28877	permethrin	3	7 days	12 hours	
Pounce	16565	permethrin	3	7 days		

Product name	Registration number	Common name	Group	Preharvest interval	Minimum re-entry	Maximum number of applications per season
Pyramite	25135	pyridaben	21	25 days	24 hours	2
Ripcord 400 EC	15738	cypermethrin	3	7 days		2
Sevin XLR	27876	carbaryl	1A	11 days		
Silencer 120 EC	29052	lambda-cyhalothrin	3	7 days	24 hours	3
Sniper	23323	azinphosmethyl	1B	14–21 days <sup>1</sup>	14 days/30 days <sup>2</sup>	3
Success 480 SC	26835	spinosad	5	7 days		3
Superior 70 Oil	9542 14981	mineral oil		use prebloom	12 hours	
Surround WP	27469	kaolin		0 days		
Thionex 50 W	14617	endosulfan	2A	15 days	4 days	3
Up-Cyde 2.5 EC	28795	cypermethrin	3	7 days	12 hours	3
<b>Products used for control or suppression of diseases</b>						
Dikar	10495	mancozeb + dinocap	M+U	45 days	48 hours	
Equal 65 WP	15608	dodine	M	7 days	48 hours	2 <sup>1</sup>
Flint 50 WG	27529	trifloxystrobin	11	14 days	12 hours/4 days <sup>4</sup>	4
Maestro 80 DF	26408	captan	M	7 days	48 hours	
Mertect SC	13975	thiabendazole	1	postharvest		
Pristine WG	27985	boscalid + pyraclostrobin	7+11	5 days	12 days/5 days <sup>5</sup>	4
Scala SC	28011	pyrimethanil	9	72 days	24 hours	4
Scholar 50 WP	28568	fludioxonil	12	postharvest		
Serenade MAX	28549	<i>Bacillus subtilis</i>	44	0 days		
Sovran	26257	kresoxim-methyl	11	30 days	48 hours	4
Streptomycin 17	10305	streptomycin	18	30 days	7 days <sup>6</sup>	3
Supra Captan 80 WDG	24613	captan	M	7 days	48 hours	
<p>A blank cell indicates the information is not specified on the product label.</p> <p><sup>1</sup> Depends on rate, see label.</p> <p><sup>2</sup> 30 days for pick-your-own harvest.</p> <p><sup>3</sup> 14 days for pick-your-own harvest.</p> <p><sup>4</sup> 4 days for hand thinning.</p> <p><sup>5</sup> 12 days for hand thinning, 5 days for hand harvesting, otherwise when dry.</p> <p><sup>6</sup> May be more or less for some tasks, see label.</p>						

---

## Thinning Pears

The main pear cultivars benefit from fruit thinning. The thinning of fruit is particularly beneficial during seasons of heavy fruit set or inadequate moisture. Bartlett and Bosc can set fruit in clusters of three to five fruit per spur. See notes on irrigation under *Thinning Peaches*, page 170.

- If fruit set is excessive, reduce the number of fruit per cluster to one or two. If the set on the tree is not excessive, 2–3 fruit per cluster will reach a satisfactory size without fruit thinning. To obtain large sized fruit, irrigate after fruit set, during extended dry periods in midsummer and a few weeks before harvest.
- Start thinning near the end of June drop (mid-June) when it can be determined which fruit will abort and fall on their own. Thinning at early fruit development has more benefits than late thinning.
- Thin pears on dwarfing rootstock early in the season in order to obtain a high percentage of marketable fruit and prevent limb breakage.
- De-fruit trees during the first four years of establishment. Reduce the crop to one fruit per spur, spaced 12–15 cm apart during normal years. Consider spur pruning on older trees, especially for cultivars on dwarfing rootstock. These pear trees can “runt out” if allowed to bear too heavily in years three to six. The combination of proper fruit thinning and irrigation has the most positive results on pear fruit size.
- Response of pears to chemical thinners, under Ontario conditions, is inconsistent between years. Try chemical thinning on a small scale until response can be evaluated with respect to tree vigour, cultivar and fruit size. Use either NAA (naphthaleneacetic acid) or NAD (naphthaleneacetamide) for chemical thinning. Suggested rates are: NAA at a concentration of 15–20 ppm approximately 3–6 days after petal fall, or NAD at 10 ppm, 6–9 days after petal fall, depending on tree vigour and amount of thinning desired. For specific application instructions consult the product label. See notes on NAA and NAD in *Chemicals available for thinning*, page 84.

### To order copies of Publication 360, Price \$20.00 + tax

- Visit ServiceOntario Publications website at <http://www.ServiceOntario.ca/publications>
- Contact ServiceOntario Publications Contact Centre at:  
1-800-668-9938  
416-326-5300  
TTY 1-800-268-7095