



Current Report

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Commercial Pecan Insect and Disease Control – 2004

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Pecans are native to Oklahoma. Records reveal that Native Americans were the first to know of pecan trees and respect the value of this nut crop.

Today, more and more pecan growers are realizing that a full management cultural program must be employed if consistent, high quality, profitable pecan crops are to be expected. In the modern pecan tree management program, attention is given to (1) annual fertilization, (2) reduction of weed and grass competition plus irrigation where practical, (3) relieving over-crowding of trees, and (4) controlling insects and diseases.

The influx of insects and incidences of diseases in recent years has made the application of sprays to control these pests a very important factor in pecan production. In many seasons, insect and disease control will be the difference between a good pecan crop and no crop.

Even with the best chemicals and the most modern equipment, insect and disease control is not an easy job. Approximately seven months are required for growth and development of a pecan crop. At some time during this period, weather conditions are likely to be favorable for numerous pests.

To apply an effective pesticide spray to pecan trees, follow these rules:

- Use an effective chemical(s)
- At the proper rate (concentration)
- Apply thoroughly
- At the proper time.

When one or more of these four rules is not carried out properly, the spray effectiveness is reduced or could totally fail.

The amount of spray applied to an individual tree or acre of trees may vary greatly depending on the type of equipment used and the manner in which it is operated. Most pecan growers in Oklahoma use ground machines calibrated to deliver 100 gallons of spray per acre. Each year, sprayer output should be calibrated and recorded with notes on pressure settings, tractor speed, and rpm's.

Regardless of the gallonage of spray applied, the amount of chemical (pesticide) applied to an acre should remain the same.

Suggested chemical rates in this publication are given as rate/acre.

Variable tree size and spacing complicate estimates of quantity of spray solution needed. These decisions must be made on an individual basis. An acre equivalent of pecan trees is approximately 30 square feet of cross sectional trunk area. This figure is derived by measuring tree trunks at 4.5 feet above ground, calculating and totaling the area. When this total reaches 30 the number of trees is one acre equivalent.

Number of trees per acre equivalent can be estimated from the following table:

Tree diameter	Trees per acre equivalent
13"	30
19"	15
23"	10

For additional information on calculating cross sectional trunk area consult OSU Fact Sheet F-6208.

If the label requires 1 pound of chemical per acre and if the average tree size is 23 inches in diameter then 10 trees should receive 1 pound of chemical. The chemical should be dissolved in adequate water to wet the entire tree canopy. The amount of water required can vary depending on the amount of tree canopy and other conditions. Native trees that have been crowded for example, may not have canopy normally associated with the trunk size. In those cases grower judgment must be utilized to determine if the volume of water utilized is adequate to cover the leaves. It is better to apply too much water than an inadequate amount.

Adequate spray solution must be applied to insure coverage of the entire tree canopy. Larger trees require more solution. Manufacturers' recommendations for gallons vary from 100 to 600 gallons per acre. Refer to the chemical label for any manufacturers' recommendations on gallons per acre to apply.

COMMERCIAL PECAN INSECT CONTROL

Pest/Time to Spray	Insecticide and Formulation¹	Amount of Material Needed² per Acre	Comments
PHYLLOXERA (GALLS) Apply from bud break to when new shoot growth is 2 inches long. Controls are not effective when typical symptoms appear.	Asana XL ^r	4.8-14.5 oz	Make one or two applications. For best results with Lorsban, apply 1 pt/100 gal at budbreak and the same 7-10 days later. When applying all sprays, thoroughly wet the foliage.
	Lorsban 4E ^r	2.0-4.0 pts	
	Malathion 57 EC	1.2 pts	
	Sevin 80S	2.5-6.25 lbs	Do not apply more than 28 oz Provado per acre per year.
	Provado 1.6F	3.5-7.0 oz	
	Thiodan 50WP	1-1.5 lb	Apply once per season.
	Thiodan 3EC	0.66-1 qt	Keep cattle out of treated groves.
	Warrior 1EC ^r	2.56-5.12 oz	
PECAN NUT CASEBEARER First Generation May 20 to June 10 when eggs appear (when tips of nuts turn brown). Second Generation July 15-25.	Ammo 2.5 EC ^r	3-5 oz	1 or 2 applications. If second application is needed, apply 7 to 10 days after the first. With adequate monitoring for casebearer eggs, one application of the biological control agent, <i>Bacillus thuringiensis</i> (found in Javelin and Dipel) or the insect growth regulator, tebufenozide (found in Confirm) can provide safe effective control while preserving beneficial organisms.
	Asana XL ^r	4.8-14.5 oz	
	Guthion 2L ^r	6-8 pts	
	Javelin WG	.25-4.0 lb	
	Malathion 57 EC	1.2 pts	
	Sevin 80S	2.5-6.25 lbs	
	Thiodan 3EC	1 qt	
	Thiodan 50WP	1.5 lb	
	Confirm 2F	8.0-16.0 oz	
	Imidan 70WSB ⁴	1-3.125 lbs	
	Spintor 2 SC	4-10 oz	Under high insect pressure use 2.0-2.5 pts per 100-300 GPA.
	Lorsban 4E ^r	1.5-4 pts	
	Intrepid 2F	8-16 oz	
	Dipel ES	1-4 pts	
	Mustang-MAX ^r	2.56-4.0 oz	
	Warrior 1EC ^r	2.56-5.12 oz	
HICKORY SHUCKWORM July 1 - July 7 A repeat application two weeks later may be needed.	Ammo 2.5 EC ^r	3-5 oz	Shuckworm can continue to be a problem through shell hardening and may not peak until half-shell hardening (about the time of weevil emergence).
	Asana XL ^r	4.8-14.5 oz	
	Confirm 2F	8.0-16.0 oz	
	Mustang-MAX ^r	2.51-4.0 oz	
	Sevin 80S	2.5-6.25 lbs	
	Intrepid 2F	8-16 oz	1 application.
	Spintor 25C	4-10 oz	
	Warrior 1EC ^r	2.56-5.12 oz	
	Pennacap-M 2E	3-8 pts	
	Guthion 2L ^r	6-8 pts	
Imidan 70WSB ⁴	1-3.125 lbs		
PECAN WEEVIL ³ Late July, early August or when weevils appear, but before shuck split.	Ammo 2.5 EC ^r	3-5 oz	The majority of weevils emerge immediately after a heavy rain (1"-2") and populations can continue emerging from late July to mid-Oct. depending on rainfall and/or soil type.
	Imidan 70WSB ⁴	1-3.125 lbs	
	Sevin 80S	2.5-6.25 lbs	
	Mustang-MAX ^r	2.56-4.0 oz	Pecans are most susceptible to injury from weevils from the gel stage till shuck split.
	Asana XL ^r	4.8-14.5 oz	
	Pennacap-M 2E	3-8 pts	
Warrior 1EC ^r	2.56-5.12 oz		
APHIDS When they appear	Ammo 2.5 EC ^r	3-5 oz	Soil application in May. Work granules into upper 2-3 inches of soil.
	Asana XL ^r	4.8-14.5 oz	
	Dimethoate 4E	0.66 pt	
	Di-Syston 15 G ^r	10-20 lbs	
	Mustang-MAX ^r	2.56-4.0 oz	For yellow aphids.
	Provado 1.6F	3.5-7 oz	
	Provado 1.6F	7-14 oz	For black aphids. Avoid controlling sub-economic infestations of aphids early in the season. This destroys beneficials and may cause flare-ups of mite populations.
	Guthion 2L ^{r5}	6-8 pts	
	Lorsban 4E ^{r5}	1-4 pts	
	Malathion 57EC	1-2 pts	
Warrior 1EC ^r	2.56-5.12 oz		

Pest/Time to Spray	Insecticide and Formulation¹	Amount of Material Needed² per Acre	Comments
WEBWORM OR WALNUT DATANA When caterpillars appear feeding on leaves (June to late August)	<i>Bacillus thuringiensis</i> products:		
	Dipel ES	1.0-4.0 pt	1 or 2 applications.
	Javelin WG	0.25-4.0 lb	1 or 2 applications.
	Spintor 2 SC	4-10 oz	
	Confirm 2F	8.0-16.0 oz	
	Guthion 2L [†]	6-8 pts	
	Sevin 80S	2.5-6.25 lbs	Follow label directions.
TWIG GIRDLER When damage first occurs -late August or early Sept.	Guthion 2L [†]	6-8 pts	Dedicated sanitation of orchard floor (sticks) can dramatically reduce twig girdler and pruner populations.
	Sevin 80S	2.5-6.25 lbs	
STINK BUGS	Guthion 2L [†]	6-8 pts	

[†] Restricted Use Pesticide

¹ See table for harvest interval and grazing restrictions.

² Gal = gallon; lb = pound; pt = pint; qt = qt; oz = ounces.

³ Pecan Weevil: This insect is a serious problem in most sections of the state. The damage may be observed in two ways: (1) shedding of the immature pecans because of the feeding punctures of the adult weevils; and/or (2) mature pecans with a hole cut into the side. The presence of adult weevils may be found by shaking or jarring the branches of the pecan trees to dislodge the weevil or by spraying a tree or a portion of a tree which has been known to be infested with weevils. A sheet or tarp placed on the ground under the tree will collect weevils when they are dislodged. The most dependable method of monitoring pecan weevil populations is to use wire cone emergence traps, pyramid traps or circle traps. Their use and utility are in Fact Sheet 7190, *Monitoring Adult Weevil Populations in Pecan and Fruit Trees in Oklahoma*. A good rain following a dry spell in August or September usually results in the emergence of large numbers of weevils from soil, and a spray should be made 2-3 days after the rain.

⁴ Imidan insecticidal activity is reduced when spray solution has a pH of 7 or higher. The pH of the spray solution can be corrected by adding a suitable buffering or acidifying agent (e.g., AG44M).

⁵ When Lorsban or Guthion are used for aphid control they should be combined with a synthetic pyrethroid (e.g., Asana XL, Ammo) for best results.

SPRAY SCHEDULE FOR VARIETIES SUSCEPTIBLE TO SCAB

Application and Timing¹	Disease Involved	Fungicide² and Formulation	Amount of Material Needed per Acre
PRE-POLLINATION. Apply when leaves are emerging after night temperatures reach 55°F.	Scab	Abound ⁶	9.2-12.3 oz
		Orbit ⁴	4-6 fl oz
		Enable 2F	8 oz
		Super-Tin 80WP	5.0-7.5 oz
		Ziram 76DF ⁵	6-8 lb
		Cyprex 65W	2 lb
		Stratego	10 oz
		Topsin M ³	0.5-1 lb
		Sovran	2.4-4.8 oz
FIRST COVER. Apply when tips of nuts turn brown.	Scab	Same as Pre-pollination	
SECOND COVER (and all additional cover sprays needed). Depending on rains and long dew periods, apply every 2-4 weeks.	Scab	Same as Pre-pollination	

[†] Restricted Use Pesticide

¹ The insecticides listed for casebearer control may be combined with several of the fungicides listed above. Check label instructions for each product prior to use.

² See table for harvest interval and grazing restrictions.

³ Widespread resistance to benzimidazole throughout the state restricts the use of fungicides such as Benlate and Topsin M to new orchards. These fungicides must be alternated with other kinds of fungicides to help prevent development of resistance.

⁴ Do not exceed 4 applications of Orbit per growing season. Do not mix with Cyprex or crop injury may occur. Check compatibility before mixing with insecticides or any other pesticides.

⁵ Do not exceed 64 lb. (48.6 lb. a.i.)/acre per crop cycle.

⁶ Do not exceed 2.31 qt. (1.2 lb a.i.)/acre per year.

Recommended Intervals Between Last Application, Harvest and Other Restrictions

<i>Chemical</i>	<i>Interval Between Last Application and Harvest and Other Restrictions</i>
Abound, Sovran	Do not apply within 45 days of harvest.
Asana, Ammo	21 days. Do not feed or graze livestock on treated orchard floors.
Topsin M	Do not apply after shuck split. 15 day waiting period before harvest.
Confirm	14 days to harvest. Do not graze livestock in treated areas or feed cover crops grown in the treated area to livestock.
Dimethoate	Do not apply within 21 days of harvest. Do not graze livestock in treated areas.
Dipel	No grazing restrictions. 0-day waiting period.
Di-Syston	Do not harvest nuts within 80 days of treatment.
Enable	Do not apply after shuck split or within 28 days of harvest. Do not graze.
Mustang-MAX	Do not apply within 21 days of harvest. Do not graze livestock on cover crops in treated areas. Other restrictions relating to use around bodies of water, may be found on the label.
Guthion	Do not apply after shuck split. Allow 21 days before grazing livestock.
Imidan	Do not apply within 14 days of harvest. Do not graze livestock on cover crops in treated areas.
Intrepid	14 days. Do not apply more than 16 oz/acre/application or 64 oz per acre/season.
Lorsban	Do not apply more than 4 qts/A (4lbs A.I./A) /season and do not graze livestock in treated areas. Do not apply within 28 days of harvest. Allow for a buffer zone when spraying near water using the following guidelines: orchard air-blast sprayer allow 50 foot buffer; Aerial application allow 150' buffer.
Malathion, Sevin, Javelin	No grazing restrictions. Sevin has a 14-day waiting period before harvest.
Orbit	Do not apply after shuck split. Do not graze or feed cover crops in treated areas.
Provado	Do not graze in treated areas. 0 days waiting between application and harvest.
Stratego	Do not apply within 30 days of harvest.
Super-Tin 80WP, Cyprex	Do not apply after shucks have started to open, and do not graze treated areas.
Thiodan	Do not graze cattle in treated groves and do not apply after shuck split.
Ziram	Do not apply within 55 days of harvest.
Spintor	14 days. Do not apply treatments less than 14 days apart. Do not apply more than 29 total ounces per acre/crop/ year. Product is toxic to bees and aquatic invertebrates.
Warrior	14 days. Do not apply more than 1.28 pts/A/year.

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