TEXAS PECAN IPM ARTICLE FOR THE MARCH 2004 ISSUE OF "PECAN SOUTH"

Foliar Insecticides for use in Pecan IPM

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Integrated pest management (IPM) uses numerous management tactics to produce a crop, including biocontrol, cultural control and chemical control. The Food Quality Protection Act of 1996 clearly will result in the reduction of chemical options currently available for IPM. Today's agricultural environment requires addressing environmental concerns with the need to make a profit. The chemicals currently available for management decision-making are provided to allow producers to weigh some of these IPM decisions in regard to the availability of chemicals and to anticipate the effects of having to find alternatives should particular chemicals cease to be available. Pesticide use can be reduced through IPM practices and particular attention should be directed toward using chemicals only as a last resort and when the benefits clearly outweigh the costs.

During the 1920's through the 60's producers had to rely on insecticides such as lead arsenate powder, engine oil emulsion, parathion, EPN and DDT to manage insect problems. Fortunately producers now have many insecticides to choose from, ranging from broad spectrum, non-selective products, to specific and selective insecticides that include insect growth regulators, microbial toxins and some new chemistry.

The following is a list of pecan insects and those insecticide labels which include the pests. Chemicals we believe to be at greatest risk of regulatory loss are primarily the organophosphates and carbamates, because they are under the closest scrutiny from regulators. Chemicals we deem at risk are marked with an asterisk (*). We have also observed that routine reliance on pyrethroids, especially in the early season, often leads to outbreaks of aphids, mites and/or leafminers during the remainder of the season. These factors need to be considered in constructing alternative management approaches.

Homoptera Pests:

Aphids (blackmargined aphid, *Monellia caryella* (Fitch); yellow pecan aphid, *Monelliopsis pecanis* Bissell and black pecan aphid, *Melanocallis caryaefoliae* (Davis))

carbaryl, (Sevin*4F, XLR, 80S, 50W); chlorpyrifos, (Lorsban* 4E, 50W); cypermethrin, (Fury 1.5EC, Mustang Max); dimethoate, (Dimethoate* 2.67EC); esfenvalerate, (Asana XL); imidacloprid, (Admire1.6F, Provado 2.6F);; lambda-cyhalothrin, (Warrior); neem, (Nemmix); phosmet, (Imidan 70WSB*) pymetrozine, (Fulfill);

Spittle bug, Clastoptera obtusa Say;

carbaryl, (Sevin* 4F, XLR, 80S, 50W); esfenvalerate, (Asana XL); lambda-cyhalothrin, (Warrior); neem, (Neemix); phosmet, (Imidan* 70W)

Phylloxera Phylloxera sp

carbaryl, (Sevin* 4F, XLR, 80S, 50W); ; esfenvalerate, (Asana XL); ; lambda-cyhalothrin, (Warrior); malathion, (Malathion* 57EC); neem, (Neemix)

Obscure scale, *Melanaspis obscura* (Comstock): Dormant oil

Hemiptera Pests

Stink bugs/Leaf-footed bugs - (southern green stink bug, *Nezara viridula* (L.); green stink bug, *Acrosternum hilare* (Say); brown stink bug, *Euschistus servus* (Say); leaf-footed bug, *Leptoglossus phyllopus* (L.).

phosmet, (Imidan* 70WSB)

Lepidopera pests

Pecan nut casebearer Acrobasis nuxvorella Neunzig

Bacillus thuringiensis, (Deliver, Dipel ES, Crymax, Lepinox WDG, Javelin, Biobit XL, XenTari, AgreeWG); carbaryl, (Sevin* 4F, XLR, 80S, 50W); chlorpyrifos, (Lorsban* 4E,50W); cypermethrin, (Fury 1.5EC, Mustang Max); diflubenzuron (Dimilin 2L); lambda-cyhalothrin, (Warrior); malathion, (Malathion* 57EC); neem, (Neemix); phosmet, (Imidan* 70WSB); spinosad, (SpinTor 2SC, Entrust); tebufenizide, (Confirm 2F)

Pecan bud moth: Gretchena bolliana (Slingerland)

malathion, (Malathion 57EC*)

Hickory shuckworm Cydia caryana (Fitch)

Bacillus thuringiensis, (Dipel ES, Javelin WG, Lepinox WDG, Crymax); carbaryl, (Sevin* 4F, XLR, 80S, 50W); chlorpyrifos, (Lorsban* 4E, 50W); cypermethrn, (Fury 1.5EC, Mustang Max); diflubenzuron, (Dimilin 2L); esfenvalerate, (Asana XL); lambda-cyhalothrin, (Warrior); neem, (Nemmix); phosmet, (Imidan* 70WSB); spinosad, (SpinTor 2SC, Entrust); tebufenizide, (Confirm 2F)

Fall webworm Hyphantia cunea (Drury)

Bacillus thuringiensis, (XenTari, Javelin WG, Deliver, Condor, Crymax, Lepinox WDG); carbaryl, (Sevin* 4F, XLR, 80S, 50W); ; neem, (Neemix); phosmet, (Imidan 70WSB); spinosad,

(SpinTor 2SC, Entrust); tebufenizide, (Confirm 2F)

Walnut caterpillar Datana integerrima Grote & Robinson

Bacillus thuringiensis, (Xentari, Condor, Crymax, Lepinox WDG, Javelin WG); carbaryl, (Sevin* 4F,XLR, 80S, 50W); neem,(Neemix); spinosad, (SpinTor 2SC); tebufenizide, (Confirm 2F)

<u>Coleoptera Pests</u> Pecan weevil *Curculio caryae* (Horn)

carbaryl, (Sevin*4F, XLR, 80S, 50W); cypermethrin, (Fury 1.5EC, Mustang Max); diflubenzuron, (Dimilin 2L); esfenvalerate, (Asana XL); lambda-cyhalothrin, (Warrior); neem, (Neemix); phosmet, (Imidan* 70WSB)

Twig girdlers: *Oncideres cingulata* (Say) carbaryl, (Sevin* 4F, XLR, 80S, 50W); neem, (Neemix)

Mites

dimethoate (Dimethoate* 2.67EC)(suppression); dicofol, (Kelthane MF), fenbutatin-oxide, (Vendex 50WP); hexythiazox, (Savey 50WP)

It is not possible within the scope of his paper to list every possible tank mix and compatibility combination. Also, pesticide labels are subject to change from year to year and it is the responsibility of the applicator to read and follow label directions.

Disclaimer

Insecticides listed in this paper are for educational purposes only and do not represent an endorsement but only that at the time of publication, pecan was present on the label.

		Signal	Restricted	
Chemical name	Trade name	word	Use	Class
Azinphosmethel	Guthion	Danger	Yes	OP
	Sniper 2E	Danger	Yes	OP
				_
B.t. (Bacillus	Dipel ES	Caution	No	B.t.
thuringiensis subsp.	Javelin WG	Caution	No	B.t.
kurstaki)	Deliver	Caution	No	B.t.
	Biobit XL	Caution	No	B.t.
	Crymax	Caution	No	Bt.
	Lepinox	Caution	No	B.t.
B t (Bacillus	XenTari	Caution	No	Bt
thuringiensis	Agree WG	Caution	No	Bt
subsp. <i>aizawai</i>	8			
Carbaryl	Sevin 4F, XLR,	Warning	No	С
	80S & 50W			
Chlorpurifog	Lorshon /E	Worning	Vac	OP
Chiorpymos	Lorsban 50W	Warning	Tes Vos	OP
	Lorsball 50 W	w arming	168	OF
Cypermethrin	Ammo 2.5EC	Caution	Yes	PY
	Fury 1.5ES	Warning	Yes	PY
	Mustang Max	Warning	Yes	PY
	0	C		
Dicofol	Kelthane MF	Caution	No	OC
	D: 11: 01		37	
Diffutenzuron	Dimilin 2L	Caution	Yes	IGK
Dimethoate	Dimethoate 267EC	Warning	No	OP
Dimethoute	Dimethoute 20720	, uning	110	01
Endosulfan	Thiodan 3EC	Danger	Yes	OC
	Phaser 3EC	Danger	Yes	OC
		-		
Esfenvalerate	Asana XL	Warning	Yes	PY
Forderstein anide	Vender 50WD	Denera	V	OD
Fendutatin-oxide	vendex 50WP	Danger	Yes	OR
Hexythiazox	Savey 50 DF	Caution	No	
Tiengunuzon	Surey so Br	Cuution	110	
Imidacloprid	Admire 2F	Caution	No	СН
•	Provado 1.6F	Caution		СН
Lambda-cyhalothrin	Warrior	Warning	Yes	PY
		~ .		
Malathion	Malathion	Caution	No	OP
Parathion	Parathion 18	Danger	No	OP
	1 araunon 4.0	Danger	110	01
Phosmet	Imidan 70WP	Warning	No	OP
		0	-	-

Table 1. Labeled insecticides for commercial pecans, 2004

Pymetrozine	Fulfill 50WG	Caution	No	PA
Spinosad	Spintor 2SC Entrust	Caution	No	IGR
Tebufenizide	Confirm 2F	Caution	No	IGR
B.t Bacillus thuringiensis				

C - carbamate IGR - Insect growth regulator OP - organophosphate OR - Organotin PA - Pyridine azomethines PY - pyrethroid IGR - insesct growth regulator