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TEXAS AGRICULTURAL
EXTENSION SERVICE

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Texas Pecan Pest Management Newsletter



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This is the first issue of the Texas Pecan Pest Management Newsletter for 1994. This newsletter will resume on a regular basis from April through September. The Texas Pecan Pest Management Newsletter will contain current insect and disease summaries, upcoming events, short summaries of county situations and progress reports of result demonstrations. Also, I will also continue the series on natural enemies.

From mid April through mid June a pecan nut casebearer prediction model will accompany each issue. The prediction model is an aid to assist you in determining when to anticipate casebearer activity. It is not intended as an automatic spray date.

Also, the author welcomes your comments or suggestions on topics you would like to see discussed. I can be reached at P.O. Box 2150, Bryan, Texas 77806-2150.

residual so only those insects which are coated will be controlled.

There are several types of horticultural oils on the market today which may cause some confusion. The following is some general information on different types or grades of oils and information that should be on the label.

Dormant oil: This type of oil is the heaviest of the horticultural oils and is formulated for use on dormant plants only. Apply these oils as late in the dormant season as possible but before budbreak. Dormant oil effectiveness increases as temperatures increase and insect metabolism increases. All oils labeled for pecan are for dormant applications.

Summer oil: This formulation of oil is lighter than the dormant oils and is refined for use during the spring and summer on some plants.

Superior oil: Superior oils are the most highly refined of all horticultural oils. These oils are used primarily during the growing season, however, they may be used as a dormant oil by changing the rate.

The information that can be found on the label will be a little

Mailing List Update

It is required by law that mailing lists for newsletters to be updated. If you would like to continue to receive the Texas Pecan Pest Management Newsletter you must return the enclosed form. If the form is not returned you will be dropped from the list.

Horticultural Oils

Horticultural oils have been used in agriculture for over 100 years. Technology in the refinement of these oils has come a long way since the use of engine oil emulsions. Today, horticultural oils are refined to certain

specifications and can be used on a wide range of host plants. For pecan insects, oils are used only during the dormant season for the control of obscure scale and phylloxera. The recommended rate is 4 gallons per 100 gallons or 5 ounces per gallon.

Pecan and hickories are considered oil sensitive and all applications should be restricted to the dormant season.

Horticultural oils control insects by either penetrating the insect egg and interfering with metabolic processes or by preventing respiration through egg shells or through the respiratory passages of mature or immature insects. Oils have no

different than what is found on an insecticide. The following information should be on the label.

Unulfonated residue (UR): The UR rating is a measure of purity or degree of refinement. This number is listed as a percent with 92 being the minimum.

Viscosity: Viscosity is a property used to define oil heaviness and is expressed in seconds. Spray oils fall into the 60 to 200 second range with heavier oils rating 100 or higher. The higher the rating the more persistent the oil on the plant. Dormant or semidormant trees will tolerate heavier deposits than trees in leaf.

Distillation temperature: The volatility of an oil can be determined by the distillation temperature. Horticultural oils have a narrow distillation range of 400 to 488 F. The lower the distillation temperature the quicker the evaporation. Dormant oils will have a distillation range of around 438 F while superior oils will be around 412 F.

Gravity: This term is another method of weighing oil. When related to viscosity and UR it can provide an index to oil paraffinity. Spray oils must be largely paraffinic to be safe for plants. Gravity is measured in seconds and the higher the number the more paraffinic the oil. Thirty degrees is the minimum standard.

Before any horticultural oil is purchased or used **always read the label** for mixing instructions, rates, plants that can be safely treated and precautionary statements.

Also, when applying an oil there must be adequate agitation in the spray tank. If the oil and water are allowed to separate and a high concentration of oil is applied, even to dormant pecan trees, tree injury or death can occur.

Insects

Obscure Scale

Obscure scale can be found in most areas of the pecan belt and in Texas, infestations can be important in the arid portions of the state.

A fully grown female scale is approximately 1/8 inch long, dark gray and closely resembles the tree bark. Infested limbs will appear to have been sprinkled with wood ashes.

Scale insects feed under their scale covering on sap from the host plant. Heavy infestations can gradually kill small branches and will weaken larger branches. Obscure scale can be controlled with a dormant oil application (4 gallons/100 gallons or 5 ounces per gallon) during the late dormant season. Thorough coverage of branches and limbs is essential for control.

Phylloxera

During the months of May and June most county Extension agents receive numerous calls concerning swellings on pecan stems and foliage. These swellings, often referred to as galls, warts, growths, knots and bumps are caused by an insect called the phylloxera.

There are five species of phylloxera that attack pecan, four

of which cause damage. The most serious of the four is the pecan stem phylloxera, *Phylloxera devastatrix* Pergande. Heavy infestations of this species will cause mid season defoliation and crop loss.

There are only two times during the season when a control measure can be applied for phylloxera; 1) late dormant season and 2) after budbreak but before the new growth exceeds two inches.

To understand how to control this insect you must understand its life cycle.

Phylloxera overwinter as an egg in the rough bark of the tree. During the time of budbreak the eggs hatch and the crawlers migrate to the new growth. Once a crawler settles on the new growth to feed it does not move. Within a week after feeding plant tissue begins to form around the crawler and is soon embedded in the tissue. Once the crawler is embedded insecticides are no longer effective.

Phylloxera infestations can be controlled to some degree with dormant oil or with an insecticide just after budbreak. Control with dormant oil will depend on the method of application. With dormant oil being a contact material and the phylloxera being in the rough bark a sprayer will have to have enough pressure and volume to force the spray into the bark crevices.

After budbreak insecticides should be used before the new growth has exceeded two inches. Recommended insecticides and rates per 100 gallons are: chlorpyrifos (Lorsban® 4E @ 1

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THANK YOU FOR YOUR SUPPORT.

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NAME: _____

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**RETURN TO: BILL REE
 PO BOX 2150
 BRYAN, TEXAS 77806-2150**

COMMENTS?

pint, Lorsban® 50W @ 1 pound); endosulfan (Thiodan®50W @ 1-1.5 pounds); Lindane®E-1 @ 1.5 pints and malathion 57%EC @1.2 pints. Homeowners may use malathion at 2 tsp. per gallon.

Some varieties of pecan are more susceptible to phylloxera than others so spot treatment is possible.

Controlling phylloxera infestations is not only important for reducing crop loss and mid season defoliation but it also indirectly affects hickory shuckworm populations. Phylloxera galls, especially stem phylloxera are early season feeding sites for the hickory shuckworm. A 1973 study in Oklahoma found evidence of hickory shuckworm in 88.5% of stem phylloxera galls and 21.6% of leaf phylloxera galls on a native tree.

Asian Ambrosia Beetle

The Asian ambrosia beetle was first discovered in the United States in 1974 infesting peach trees in South Carolina. It has since spread across the southeast into east Texas.

During February, March and April a survey will be conducted in east Texas orchards and nurseries for this pest. This beetle has been observed causing damage to pecan, fruit and ornamental trees in east Texas and information is needed on its distribution in Texas.

I have written about this insect on a couple occasions, February 1993 and January 1994 issues of Pecan South and in the February 22, 1993, #93-1 Texas Pecan Newsletter. Currently this insect is known to occur in 28 east

Texas counties.

Although this insect is very small 2-3 mm (2/25 - 3/25 inch) in length, the signs of an infestation can be very obvious. As a female beetle bores into a host plant the boring material tends to stick together forming toothpick like spines which will protrude from the host plant. These spines are fragile but may extend up to 1 1/2 inch from the host plant.

The size of the host tree can range from 3/4 inch to 12 inches in diameter. There are over 120 known hosts across its distribution range. In the United States some known hosts include, pecan, peach, plum, cherry, persimmon, sweet gum, shumard oak, Chinese elm, magnolia, fig, Mexican buckeye, golden rain tree and sweet potato.

Trapping information from east Texas indicates there is some activity most of the year, however peak activity is during March. Currently the only control method is to cut and burn infested plants or plant parts. A trunk treatment with a labeled insecticide to surrounding plants may help prevent additional infestations.

If anyone observes an infestation, please call their local county Extension agent or myself before a plant is destroyed so samples can be taken. I can be reached at 409-845-6800.

Beneficial Insects

Harmonia Lady Beetle *Harmonia axyridis* (Pallas)

During the spring this lady beetle will be released in selected pecan orchards across Texas as part of

a biological control program for the yellow pecan aphid complex. The adults that will be released were collected last November in Georgia and are currently being stored in refrigerators in Dallas.

This aboreal lady beetle is native to China, Japan and southern Siberia and is known to feed on a wide range of aphids and scale insects on deciduous trees, pines and shrubs.

The Harmonia lady beetle has long been known for its potential as a beneficial. Several attempts have been made to try and establish it in the United States. The first attempt was in 1916 in California. Several additional attempts have been made since then. A large scale release was made from 1978-81 at the USDA Fruit and Tree Nut Research Station in Byron, Georgia. However, the first reported of establishment was not until 1990 in northwest Georgia. The Harmonia lady beetle is now the most common lady beetle in pecan in Georgia and northern Florida.

The first recorded Harmonia in Texas was from San Antonio in 1992. During 1993 this lady beetle was collected in Brazoria, Navarro, Gregg, Anderson and Guadalupe counties.

Adult Harmonia lady beetles are similar in size to the common convergent lady beetle. However, the Harmonia lady beetle has a wide variability in color patterns. This species of lady beetle can range from yellowish orange to reddish orange and the number of spots on the wing covers can range from none to 18.

The most distinguishing feature are two large white areas located

on a shield like plate just behind the head. The larvae are also very distinct having a reddish orange blaze on each side of the abdomen.

Where the Harmonia lady beetle has become established in Georgia it has been reported by growers and researchers to provide good control of the yellow and blackmargined pecan aphids. It is also reported in Georgia to be an important predator of aphids on roses, crape myrtles and Christmas trees.

If there is anything negative about this insect it is that in the fall the adults migrate from their feeding sites and congregate in large numbers to overwinter in protected places. In their native area overwintering takes place in limestone cliffs and caves. In the United States overwintering sites include chimneys and unheated attics in homes. Light colored buildings heated by the sun seem to be attractive to this insect in the fall.

Adults will congregate in groups which may number several hundred to spend the winter. The overwintering adults will not harm structures or people and will emerge in the early spring.

A color picture of the adult and story can be found on page 2 in the December 1993 issue of Pecan South. A color picture is also on the cover of the May 1993 Pecan South.

Upcoming Meetings

County/Area Meetings

March 24

Williamson County
Ron Leps CEA Williamson
County
512-869-4400

March 29

Central Texas Shortcourse
Goldthwaite, TX
Danny Long, CEA Mills Co.
915-648-2650
Bob Whitney, CEA Comanche
Co. 915-356-2539

April 5

Galveston County
Dr. William Jonson, CEA
Galveston Co. 713-337-2575

April 12

San Saba County
Roy Walston, CEA San Saba Co.
915-372-5416

April 15

Colorado, Fayette, Wharton Co.
Rick Jahn CEA Colorado Co.
409-732-2082
Larry Nickel, CEA Fayette Co.
409-968-5831
Benard Mitchell, CEA Wharton
Co. 409-532-3310

April 19

Burleson County
David Reue, CEA Burleson Co.
409-567-3255

April 29

Falls County
Jeff Stapper, CEA Falls Co.
817-883-2526

May 3

Lee County
Billy Gillum, CEA Lee Co.
409-542-2753

State/Regional Meetings

March 6-8

Western Pecan Growers Assoc.
Annual Conference, Las Cruces,
New Mexico. Esteban Herrera
505-646-2921

May 6-7

Georgia Pecan Growers Meeting
Albany, Georgia
Jane Crocker 912-759-2879

June 15-16

Mississippi/Louisiana Pecan
Growers Meeting
Baton Rouge, LA

June 19-21

Oklahoma Pecan Growers
Conference and Trade Show.
Fountainhead Resort, Lake
Eufaula.
Robert Knight 918-299-0409

July 10-13

Texas Pecan Growers Association
Conference and Trade Show
Waco convention Center
Cindy Wise, TPGA
409-846-3285.

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