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Managing Insects on Texas Peanuts

TEXAS AGRICULTURAL EXTENSION SERVICE
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MANAGING INSECTS ON TEXAS PEANUTS

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A committee of state and federal research personnel, Texas Agricultural Extension Service specialists and Texas Department of Agriculture personnel meets annually to review research results, evaluate field experiences and develop suggestions for practical, environmentally safe and profitable insect management practices for Texas peanut producers.

Variations in weather, occurrence of beneficial organisms and cultural practices result in insect problems fluctuating from one season to the next. Land potentials, anticipated yield, stage of plant development, moisture conditions and insect species are important factors to consider before applying insecticides. Knowing when *not* to make an application often is as important as knowing when to make one. To achieve effective, economical insect control, insecticide applications must be based on pest populations as determined by field inspections. Use chemicals only if economically damaging populations of insects develop. Naturally occurring insect parasites and predators should be utilized and protected. Spiders are very helpful in controlling insect pests and should be conserved in the peanut field. Immediate results and long-range consequences of insecticide applications require careful consideration if profitable, effective insect control programs are to be implemented.

INSECT PESTS

Lesser Cornstalk Borer

The lesser cornstalk borer is the major insect pest of Texas peanuts. This small, slender larva is primarily a subterranean feeder, living beneath the soil surface in silken tubes. Late-planted peanuts are particularly susceptible to damage in the seedling stage, which often results in reduced plant stands. Worms or larvae injure mature plants by feeding on pegs, pods, stems and roots. Pegs are cut off below the ground surface and the developing nuts are hollowed out. Stems and roots are scarred and may be girdled.

This insect usually is more harmful to peanuts grown under dryland conditions and during drought years. Prolonged rainfall and irrigation contribute to larval mortality. Proper timing of irrigation and the adequate amount of water applied at each irrigation may help reduce larval populations. Keeping land free of volunteer peanuts, weeds and grasses several weeks before planting will help reduce pest populations during early season.

Thorough, frequent field checks are necessary to determine when to treat for lesser cornstalk borer. In this way, insecticide applications can be timed precisely and unnecessary treatments avoided. If the producer is unable to make field checks regularly, he should employ competent commercial field scouts for the season.

How To Make Inspections

Producers should begin field checks at plant emergence and continue them at least once a week. Field check locations should be selected at random, with one location for each 5 acres in a field and a minimum of five sample sites in any field. Sample sites should not be close to field borders. A minimum of five plants should be examined at each sample site. The base of the plant just below the soil surface should be inspected for feeding damage, larval tubes and larvae. Later in the season, pegs and peanuts also should be examined. *To obtain a percent infestation figure, divide the total number of plants inspected into the number of infested plants found.* Do not derive an infestation level from dead larvae, larval tubes or plant damage. See the following table and example.

Number of infested plants	Number of plants examined			
	25	33	50	100
	Percent Infestation			
1	4	3	2	1
2	8	6	4	2
3	12	9	6	3
4	16	12	8	4
5	20	15	10	5
6		18	12	6
7			14	7
8			16	8
9			18	9
10				10

Example:

If there were five infested plants (left column) in a total of 50 plants examined (upper row), there would be a 10 percent infestation. If several larvae are found on a single plant, it is still counted as *one* infested plant.

When to Begin Chemical Control

Recent research indicates that yield or quality losses do not occur until certain infestation levels are reached. After initial pegging, irrigated peanuts should be treated when 15 percent or more of the plants are infested with lesser cornstalk borer larvae. In dryland, begin treatment when 10 percent or more of the plants are infested. However, before initial pegging, infestation levels of more than 5 percent in dryland and more than 10 percent in irrigated peanuts will require treatment. Treatment of lower level infestations probably would not be profitable. In addition to losing the cost of the insecticide, the producer could destroy beneficial insects, thus predisposing peanuts to certain foliage feeders and spider mites.

Economic thresholds for the lesser cornstalk borer in both dryland and irrigated peanuts are as follows:

	Dryland	Irrigated
Before initial pegging	5%	10%
After initial pegging	10%	15%

Thrips

Thrips feed primarily in terminal leaf clusters between folds of young leaflets by rasping the tender leaf surface and sucking up plant juices. This results in dwarfing and a malformation of leaves and causes a condition called "pouts." Feeding usually occurs during the first month after plant emergence.

Spraying or granular applications of insecticides at planting time effectively controls this insect but does not generally increase yields. Effective control of thrips populations as high as 30 to 40 thrips per terminal has not increased yields in the West Cross Timbers area. Yield increases following insecticide applications depend on the environmental conditions and the stage of plant growth when thrips damage occurs.

Foliage-Feeding Insects

Foliage-feeding insects include the corn earworm or cotton bollworm, red-necked peanut worm, armyworm, salt marsh caterpillar and grasshopper. Research on control of foliage-feeding pests indicates that the peanut plant is extremely tolerant to foliage loss. However, extensive feeding damage may lower yields in both dryland and irrigated fields. The plant is most susceptible to insect foliage damage from 60 to 90 days of age. Frequent field inspections should be made before applying insecticides to determine if economically damaging numbers of injurious insects are present. Should chemical control measures become necessary, apply when insects are in the early instars of development.

Florunner variety of peanuts has more foliage area than Spanish types and can tolerate greater foliage loss before yield reductions occur. Dryland Spanish peanuts can tolerate 3 to 5 medium to large larvae per linear row foot before yield losses will occur. Irrigated Spanish peanuts can tolerate approximately 6 to 8 medium to large larvae per linear row foot before significant yield losses occur.

Burrowing Bugs

Adult burrowing bugs migrate into peanut fields around midsummer and usually are found beneath the soil surface attacking developing nuts. Infestations are more common in the south Texas production area. Burrowing bug feeding results in a light- to dark-brown mottling of the kernels, as well as grade reductions. Research indicates that damage occurs only on young or maturing peanuts. Effective control has been achieved using granular insecticides when burrowing bugs are present.

Miscellaneous Pests

Other peanut pests include spider mites, three-cornered alfalfa hoppers, leafhoppers, cutworms, webworms, wireworms, white grubs, corn rootworms, leaf miners, flea beetles, stink bugs and lygus bugs. If high numbers of these pests develop, apply insecticides before extensive damage occurs.

The Southern corn rootworm may become more of a problem in soil that is wet and has a high clay content. In some areas of the state, certain species of spider mites in peanuts have become highly resistant to most organophosphate insecticides and cannot be controlled with registered materials in most cases. Natural populations of beneficial organisms usually control spider mites effectively. However, frequent application or misuse of many insecticides and/or pesticides can result in the destruction of beneficial organisms, thus favoring spider mite population increases and the development of insecticide resistance. Sulphur applications for leaf disease control will tend to suppress spider mite populations but will not provide mite control when populations have reached economically damaging levels.

PRECAUTIONS

1. Read the label on each pesticide container before use. Adhere strictly to all restrictions concerning use of plant material as animal feed.
2. Keep pesticides in original containers.
3. Dispose of the empty containers according to specifications on the label.
4. Parathion is extremely toxic to man and other warm-blooded animals. Use it in strict accordance with label instructions.
5. Improper use of insecticides can result in poor insect control as well as crop condemnation. When using approved insecticides, do not exceed recommended maximum dosage levels, and be sure to allow the proper time between the last application and harvest. Using materials without proper label clearance, or exceeding approved tolerance limits, can result in crop condemnation.

POINTS ON APPLICATION

1. Insecticide use should be restricted to actual need, based on field inspections.
2. Direct flat fan nozzles to the base of the peanut plant for lesser cornstalk borer control, or direct hollow cone nozzles to cover plant thoroughly for foliage-feeding insect control.
3. Nozzle size, number of nozzles, ground speed and pressure influence the rate of chemical output per acre. Calibrate the sprayer accurately to insure application of

recommended amounts of insecticide. Periodically check the calibration during the season. For information on the use of sprays and spray machinery, see *Insecticidal Spraying of Field Crops with Ground Machinery* and *Pesticide Application Ground Equipment Calibration Guide* (L-486 and L-764, Texas Agricultural Extension Service).

4. Apply insecticide sprays when weather conditions will not cause drift to adjacent fields or crops. If showers occur and the insecticides are washed off the plants within 12 to 24 hours of application, repeat application as soon as possible.

5. Some insecticides are destructive to honey bees. Since bees help pollinate many agricultural crops, care should be taken not to destroy them.

6. Maintain accurate, detailed records of pesticide use.

POLICY FOR MAKING INSECT CONTROL RECOMMENDATIONS

Recommendations on use of pesticides made by the Texas Agricultural Extension Service and the Texas Agricultural Experiment Station are based upon:

- Effectiveness under Texas conditions
- Avoidance of residues in excess of allowable tolerances
- Avoidance of contamination or contact to humans, animals and desirable vegetation
- Avoidance of adverse side effects upon beneficial predators, parasites, honey bees, fish and other wildlife, plants, animals and humans.

Suggested pesticides must be registered and labeled for use by the U.S. Environmental Protection Agency and the Texas Department of Agriculture. The status of pesticide label clearances is subject to change, and may have changed since this publication was printed. County Extension agents and specialists are advised of changes as they occur.

The USER is always responsible for the effects of pesticide residues on his livestock and crops, as well as problems that could arise from drift or movement of the pesticide from his property to that of others. **ALWAYS READ AND FOLLOW CAREFULLY THE INSTRUCTIONS ON THE CONTAINER LABEL.**

For further information, contact your county Extension agent, area and county Extension entomologist or:

Leader-Agricultural Chemicals, Texas Agricultural Extension Service, Texas A&M University (713/845-3849)

The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Cooperative Extension Service is implied.

David S. Moore, former county entomologist in Comanche County, provided significant information for the development of this publication.

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Insect	Insecticides Listed at Random	Pounds of Technical Per Acre	Formulation	Remarks
Thrips	Sevin® 80WP	1.0 lbs.	Spray or dust	Carbaryl. Apply as needed. No time limitation. Has caused slight burn on seedling peanuts and rapidly growing plants. Yield losses to thrips have not been observed.
	Malathion E-8	1.0 lbs.	Spray	Malathion. Follow label directions for application.
Lesser cornstalk borer				See lesser cornstalk borer in text for details on type of damage, need for control, timing applications and scouting procedures.
		Irrigated Peanuts		Apply granular materials in a 12- to 14-inch uniform band directly over the row. If applications are made when plant size permits incorporation, mix granules thoroughly into the top few inches of soil. However, granular applications should precede irrigation and be watered thoroughly. Begin applications when infestation levels exceed 10 percent before initial pegging and 15 percent after initial pegging. See label for specific restrictions.
	Lorsban® 4E	1.0-2.0 lb.	Spray	Lorsban. Apply at 8-10" wide band over fruiting zone in 20-40 gallon mix/acre. Only one application per season as directed spray.
	Diazinon® 14G	2.0 lb.	Granular	Diazinon. Livestock may be fed (1) peanut forage 7 days after treatment and (2) hulls after treatment.
	Dyfonate® 10G or 20G	1.6 lb.	Granular	Dyfonate. Apply up to 30 days after pegging and incorporate lightly into the soil.
	Parathion® 10G	2.0-2.5 lb.	Granular	Parathion. Apply in 12- to 15-inch band over row just prior to after pegging.
	Lorsban® 15G	7.5-15 ounces	Granular	Lorsban. Apply in 10-18" band over fruiting zone at pegging. Incorporate into upper 1-2" soil. Irrigate within 24 hours with two (2) acre inches water.
		Dryland Peanuts		Apply sprays using two flat fan nozzles per row directed so that only the lower stems and a 6- to 8-inch band of soil are covered on each side of the row. This allows beneficial insect populations to exist on the upper two-thirds of the plant foliage. Repeat applications as indicated by infestation levels.
	Azodrin® 5	1.0 lb.	Spray	Azodrin. Apply in 20 to 40 gallons of water per acre as a basal-directed spray in a 10- to 12-inch band. Do not exceed two applications per crop. Do not apply within 15 days of harvest. Do not feed vines or hay from treated fields to livestock. Do not graze livestock in treated fields.
	Dasanit® 15G	1.0 lbs.	Spray	Dasanit. Apply in 20 to 40 gallons of water per acre as a basal-directed spray. Do not exceed four applications per crop. Do not apply basal-directed spray if higher rate (2.0-4.0 lb. a.i./acre) was used as preplant or pegging application. Do not apply within 30 days of harvest. Do not feed vines or hay from treated fields to livestock. Do not graze livestock in treated fields.
	Lorsban® 4E	1.0-2.0 lb.	Spray	Lorsban. Apply in 8-10 inch wide band. Use 20-40 gallon spray mix per acre. See label restrictions.
	Parathion® 4E	0.5 lb.	Spray	Parathion. Do not apply within 15 days of harvest or grazing.
	Burrowing bugs			
Dyfonate® 10G or 20G		1.5 to 2.0 lb.	Granular	Dyfonate. Apply in 18-inch band over the rows at 1.5 lb. rate or as a broadcast application at 2.0 lb. rate. Application can be made up to 30 days after pegging begins. Incorporate lightly into the soil and follow application with irrigation, where practical. See grazing and harvesting restrictions under lesser cornstalk borer.
Foliage feeders Armyworms Cutworms Corn earworm Grasshoppers Leafhoppers Three-cornered alfalfa hopper				Make regular, frequent inspections of peanut fields. Start application before larvae cause serious damage and while they are small. Small larvae are easier to control.
	Lorsban® 4E	5-1.0 lb.	Spray	See label for restrictions on applications and animal feed.
	Azodrin® 5	0.75 to 1.0 lb.	Spray	Azodrin, Carbaryl and Parathion. Observe restrictions cited above for thrips and lesser cornstalk borer.
	Sevin® 80WP	1.0 lb.	Spray or dust	
	Nudrin® or Lannate® L	0.5 to 0.9 lb.	Spray	
Armyworms Red-necked peanutworm	Parathion 4E	0.5 lb.	Spray	Parathion. Use only where obtaining control has been difficult. Only parathion is labeled for controlling the red-necked peanutworm. See restrictions under lesser cornstalk borer.
Spider mites	Azodrin®	0.75 to 1.0 lb.	Spray	Azodrin. Thorough coverage is essential. Observe restrictions under lesser cornstalk borer.
	Comite® EC	1.6 lb.	Spray	Comite. Apply in a minimum of 20 gallon spray mix by ground and 5 gallons by air. Fourteen days preharvest interval.
	Lorsban® 4E	5-1.0 lb.	Spray	Lorsban. See label for restrictions on applications and animal feed.
	Omite® 30W	1.0 lb.	WP	Omite. Do not graze or feed hay to livestock.
Southern corn rootworm	Dasanit® 15G	2.0 lb.	Granular	Dasanit. Apply uniformly in a 12- to 18-inch band over the row at pegging. Mix granules into soil at a depth of 1 to 2 inches on each side of row. Do not feed vines or hay from treated fields to livestock. Do not graze treated fields.
	Lorsban® 15G	7.5-15 ounces/1000 row feet	Granular	Lorsban. Apply in 10-18" band just prior to or at pegging. Incorporate into upper 1-2" of soil. See label for restrictions.
	Dyfonate® 10G or 20G	1.5 to 2.0 lb.	Granular	Dyfonate. Apply in an 18-inch band over the 36- to 40-inch rows. Applications may be made up to 30 days after pegging. Incorporate lightly into the soil. See restrictions under lesser cornstalk borer.