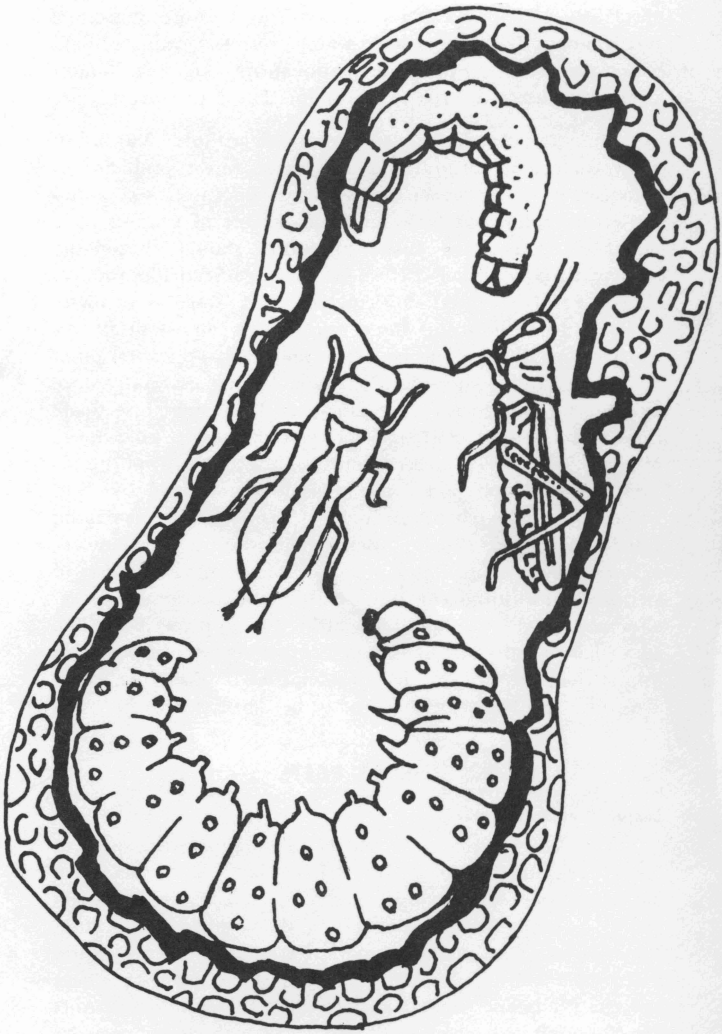
L-704

5-21-74
SM
JW

SUGGESTIONS FOR MANAGING INSECTS ON TEXAS PEANUTS



TEXAS AGRICULTURAL EXTENSION SERVICE
THE TEXAS A&M UNIVERSITY SYSTEM
JOHN E. HUTCHISON, DIRECTOR, COLLEGE STATION, TEXAS

SUGGESTIONS FOR MANAGING INSECTS ON TEXAS PEANUTS

Prepared by Extension Entomologists

Suggestions in this publication are based on results of continuing research conducted throughout the state by the Texas Agricultural Experiment Station. Research results for some of the minor peanut pests from other peanut-producing states have been evaluated carefully and utilized in developing these suggestions. 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 the safest, most profitable insect control practices for Texas producers.

Many insects and mite species attack peanuts. Variations in weather and cultural practices cause insect problems to fluctuate from one season to the next. Because insect populations vary and economic levels of damage to peanuts have not been determined fully, producers should thoroughly analyze their situations before beginning insecticide applications. Land potential, anticipated yield, stage of growth, moisture conditions and insect species are important factors to consider. Knowing when *not* to make an application often is as important as knowing when to make one, especially since agricultural producers face an ever-decreasing insecticide arsenal and more restrictions on pesticide use. To achieve effective, economical insect control, insecticide applications must be based on pest infestations as determined by field inspections. Use chemicals only if economically damaging numbers of insects develop. Besides the wise use of chemicals, a sound insect control program also makes maximum use of natural and cultural controls. Natural populations of parasites and predators should be utilized and protected. The immediate results and long-range consequences of insecticide applications require careful consideration if profitable, effective insect control programs are to be developed.

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 may be damaged in the seedling stage, resulting in reduced stands. Worms or larvae injure mature plants by feeding on pegs, pods, stems and roots. Pegs are cut off below ground surface, and the developing nuts are hollowed out. Stems and roots are scarred and may be girdled.

This insect usually is most harmful to peanuts grown under dryland conditions or during drouth years. Prolonged rainfall and irrigation in certain fields appear to contribute to larval mortality. Timing of irrigation or amount of water applied at each irrigation may contribute to differences in

larval populations. Damage may be reduced by keeping land free of volunteer peanuts, weeds and grasses several weeks before planting.

To achieve effective control and prevent over-use of insecticides, producers should be thoroughly familiar with lesser cornstalk borer population levels in their fields. Thorough, frequent field checks are necessary to determine these levels. 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 Counts

Producers should make field checks beginning at stand and continuing at a minimum of weekly intervals. A *minimum* of five plants should be examined at each of five locations selected randomly throughout the field, but not close to field borders. As the number of locations and plants inspected increases, the more accurate the estimated infestation level will be. The base of the plant just below the soil surface should be inspected for feeding damage, larval tubes or 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 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 hand 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 for several reasons. 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 dryland and irrigated peanuts, lesser cornstalk borer:

	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 leaf surface and sucking up plant juices. This results in dwarfing and malformation of leaves, and causes a condition called "pouts." Feeding commonly occurs during the first month after plant emergence.

Spraying or granular application of insecticides at planting time effectively controls this insect, but does not generally increase yields. Yield increases following insecticide applications depend on the extent of thrips damage or population numbers and the stage of plant growth when damaged.

Foliage-Feeding Insects

Foliage-feeding insects may cause considerable damage. This group includes 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 of foliage loss. A large amount of feeding damage in the axis reduces pegging and may lower yields in both dryland and irrigated production. These secondary insect pests can become economically important if unwarranted insecticide use removes natural populations of beneficial insects that provide effective biological control. For this reason, 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 worms or grasshoppers are small.

Burrowing Bugs

Burrowing bugs have become economically damaging to peanuts. Adult burrowing bugs migrate into peanut fields around midsummer and usually are found beneath the soil surface attacking developing nuts. 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 when young or maturing peanuts are present. Preliminary research indicates effective control can be achieved when granular insecticides are applied, based on the presence of burrowing bugs or damage, 25 to 30 days before harvest.

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 large infestations develop, apply

insecticides before extensive damage occurs. 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 insects usually control spider mites effectively. However, frequent applications or misuse of any insecticide can result in the destruction of beneficial insects, thus favoring spider mite population build-ups and development of insecticide resistance.

PRECAUTIONS

1. Read the label on each pesticide container before use. Follow instructions carefully; heed caution and warning statements and observe precautions concerning avoidance of residues. Adhere strictly to all restrictions concerning use of plant material as animal feed.

2. Keep pesticides in original containers. Keep them away from children or animals, preferably under lock, and away from food, feed, seed or other material that may become harmful if contaminated. Proper storage of partially used insecticide containers is very important. Many small children are accidentally poisoned each year because of easy access to insecticides which are improperly stored.

3. Dispose of the empty containers according to specifications on the label. If disposal instructions are not on the label, burn containers where smoke will not be a hazard, or bury them at least 18 inches deep in a place where water supply will not be contaminated.

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 rcommended 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 inspection. Inspect peanut fields frequently and thoroughly. Begin applications while worms are small, before they cause serious damage.

2. Use any row-crop duster or sprayer that can be adjusted to desired row width. 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 output per acre. Before starting the season, calibrate the sprayer accurately to insure application of recommended amounts of insecticide. Periodically check 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 dusts when the air is calm. Dew is not necessary for dust applications. Place dust nozzles on ground machines 4 to 6 in. above the plant. In late season, the rate of application may need to be increased to give adequate coverage. Dusts and wettable powders are washed off by light showers more easily than sprays.

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

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

7. Maintain accurate, detailed records of pesticide use. Include such information as dates of purchase and application, type of equipment used, weather conditions, location of pesticide applications and rates applied.

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 toxicity 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, Texas Department of Agriculture or:

Leader-Agricultural Chemicals, Texas A&M University (713/845-1353)

Insect	Insecticides (Listed at random)	Rates (Pounds technical per acre)	Formulation	Remarks
Thrips	Carbaryl (Sevin)	1.5	Spray or dust	**Carbaryl.** Apply as needed. No time limitation. Has caused slight burn on seedling peanuts and rapidly growing plants, but no yield losses have been observed.
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 in thoroughly. Begin applications when infestation levels exceed 10% before initial pegging and 15% after initial pegging.
	Diazinon	2.0	Granular	**Diazinon.** Livestock may be fed (1) peanut forage 7 days after treatment and (2) peanut hay or hulls 21 days after treatment.
	Dyfonate	1.5	Granular	**Dyfonate.** Apply up to 30 days after pegging and incorporate lightly into the soil. Do not graze livestock or harvest within 45 days of application.
		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	1.0	Spray	**Azodrin.** Apply in 20 to 30 gallons of water per acre as a basal-directed spray. 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	1.0	Spray	**Dasanit.** Apply in 20 to 30 gallons of water per acre as basal-directed spray. Do not exceed four applications per crop. 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.
	Parathion	0.5-0.75	Spray	**Parathion.** Do not apply within 15 days of harvest or grazing.
Burrowing bugs				See burrowing bugs in text for type of damage, seasonal habits, need for control and timing applications. Need for application should be based on the presence of burrowing bugs and/or damage when peanuts are young or maturing.
	Diazinon	2.0	Granular	**Diazinon.** See restrictions under lesser cornstalk borer. Apply in a 12- to 14-inch band followed by thorough irrigation.
	Dyfonate	1.5-2.0	Granular	**Dyfonate.** Apply in 12- to 14-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 Climbing cutworm Corn earworm Grasshoppers Leafhoppers Red-necked peanutworm Salt-marsh caterpillar Three-cornered alfalfa hopper Webworm				For climbing cutworms, apply on soil in late afternoon. Make regular, frequent inspections of peanut fields. Start application before worms cause serious damage and while they are small. Small worms are easier to control.
	Carbaryl (Sevin)	1.5	Spray or dust	**Carbaryl and parathion.** Observe restrictions cited above for thrips and lesser cornstalk borer.
	Parathion	0.5-1.0	Spray	**Parathion.** Use only where obtaining control has been difficult. See restrictions under lesser cornstalk borer.
Spider mites	Azodrin	0.75-1.0	Spray	**Azodrin.** Thorough coverage is essential. Observe restrictions listed under lesser cornstalk borer.
	Parathion	0.5-0.75	Spray or dust	**Parathion.** Observe restrictions under lesser cornstalk borer.
	Sulfur	20-25	Dust	**Sulfur.** No time limitations.
White Grubs	Parathion Diazinon	2.0 2.0	Spray Granular	Generally a problem when peanuts follow grass sod. Apply if white grubs or wireworms are observed when peanut land is turned. Apply before planting. Work into top 3 inches of soil. See restrictions under lesser cornstalk borer.
Southern corn rootworm	Dasanit	2.0	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.
	Dyfonate	1.5-2.0	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.

Cooperative Extension Work in Agriculture and Home Economics, The Texas A&M University System and the United States Department of Agriculture cooperating. Distributed in furtherance of the Acts of Congress of May 8, 1914, as amended, and June 30, 1914.
5M—3-74, Revised

ENT, AGR 6