INSECT CONTROL IN PEANUTS

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Thrips

Seedling peanut plants are usually attacked by thrips within the first 6 to 8 weeks after planting, and thrips may complete several generations per season under favorable conditions. These tiny, spindle-shaped insects feed primarily within the developing, unfolded leaflets causing crinkling of the leaflets and stunting of the plants. Blackening of the small leaflets occurs with severe infestations and can be mistaken for chemical injury. Under favorable conditions, plants normally outgrow this injury with no reduction in yield or grade. However, the delay in vine growth from early-season thrips injury may retard maturity. This in combination with other injury, such as herbicide burn, can reduce yield.

Thrips can be controlled with either systemic or with foliar-applied insecticides. Systemics can be incorporated in the furrow with the seed at planting. Foliar treatments can be applied as needed after crop emergence. During dry seasons or seasons with excessive rains, the systemic insecticides may not give adequate thrips control due to poor systemic uptake by the plants or leaching of chemicals from the soil. Foliar treatments may be warranted to allow more rapid plant growth to assist in weed control if systemics are ineffective, or if injury appears excessive. Foliar treatment is recommended when 25 percent of the leaves show thrips damage and pest populations are still active.

Table 16. Recommended Insecticides for Thrips Control

Treatment	Insecticide (Formulation)	Amount product per acre	Time limits: days before harvest	Remarks
Foliar	methomyl (Lannate LV) (Lannate SP)	 1.5-3.0 pt 0.5-1.0 lb	 21 21	**RESTRICTED USE.** Do not feed treated vines.
	acephate (Orthene 97) band rate broadcast rate	 3.0-6.0 oz 6.0-12.0 oz	 14	Do not feed treated forage or hay to livestock or allow animals to graze treated areas.
	lambda-cyhalothrin (Warriot T) (Karate Z)	 2.56-3.84 oz 1.28-1.92 oz	 14 14	**RESTRICTED USE**. Do not apply more than 15.36 oz/A/season. Do not graze livestock in treated areas, or use treated vines or hay for animal feed.
	gamma-cyhalothrin (Proaxis) (Prolex)	 2.56-3.84 oz 1.02-1.54 oz	 14 14	**RESTRICTED USE**.
In-furrow	disulfoton (Di-Syston 15G)	 6.7-13.3 lb	 --	**RESTRICTED USE.** Place granules in a band on each side of the seed furrow at planting, or as a side dressing at pegging. Do not apply directly on the seed. Do not feed treated vines.
	phorate (Thimet 20G)	 5.0 lb	 90	**RESTRICTED USE.** Distribute granules evenly in the furrow. Do not graze or feed treated hay or forage to livestock.

Table 16. Recommended Insecticides for Thrips Control (cont.)

Treatment	Insecticide (Formulation)	Amount product per acre	Time limits: days before harvest	Remarks
In-furrow cont.	alidcarb (Temik 15G) In Twin rows	7.0 lb 5.0-7.0 lb/ row	90	**RESTRICTED USE.** Apply granules in seed furrow and cover with soil. Do not hog-off treated fields. Do not feed green forage, hay or straw to livestock. Do not plant corn, small grains, or forages within 12 months after last application.
	acepthate liquid in furrow (Orthene 97)	12.0-16.0 oz	14	Apply as a liquid into the seed furrow in 3 to 5 gal of water/A with a system that ensures good seed coverage. Do not feed treated forage or hay to livestock or allow animals to graze treated areas.
	on seed (Orthene 75S)	4.0 oz/100 lb seed	14	Mix in the planter to obtain good coverage of ALL seed by layering seed and product. Fill the planter box 1/3 full of seed with 1/3 cup of the product, add the next 1/3 of the seed and product; then add the last 1/3 of the seed and product. Gently stir each layer before adding the next. CAUTION: Do not use with seed inoculants. Not recommended for air planters. Do not use treated seed for food or feed purposes or process for oil.

Potato Leafhopper

The potato leafhopper is a common “above ground” pest of peanuts in Virginia. This small, wedge-shaped, light green to yellow insect damages the peanut plant by feeding on the undersides of leaves in a piercing-sucking manner. The injured leaf tips first turn yellow then brown and tend to curve downward. During feeding, toxins also are passed into plants at feeding sites. If enough damage is done, the toxins can stop vine growth, resulting in reductions in yield and grade. Injury may occur at any time from early June to the middle of August or later in some years. It is important to note that although late-season damage appears worse in some years, damage done early in the season probably has a greater affect on plant vigor and yield. Systemic insecticides applied at planting time will usually control potato leafhoppers that occur early, but if no pegging-time insecticide is applied, it may be necessary to make one or two foliar applications in July or early August. Pegging-time applications of rootworm insecticides will usually control leafhoppers from that time until harvest.

Foliar treatments should be made only on a basis of need. When 25 percent of the leaves show tip yellowing typical of leafhopper damage and active adult and immature leafhoppers are seen, treat with an effective chemical. When foliar treatments are required, the first application usually is made about mid-July, and the second about the first of August (if needed). If scheduled treatments are being made for control of leafspot, insecticides may be tank mixed. Do not include insecticides with all leaf-spot treatments as a matter of course. Too many insecticide applications, or applications later in the season, could cause spider mite populations to increase, especially in dry years after adjacent corn and weedy areas have been cut. Make leafhopper applications only when problems have been identified.

Table 17. Recommended Insecticides for Potato Leafhopper Control

Treatment	Insecticide (Formulation)	Amount product per acre	Time limits: days before harvest	Remarks
Foliar	methomyl (Lannate LV) (Lannate SP)	 0.75-3.0 pt 0.25-1.0 lb	 21 21	**RESTRICTED USE.** Do not feed treated vines.
	acephate (Orthene 97)	6.0-12.0 oz	14	Do not feed treated forage or hay to livestock or allow animals to graze treated areas.
	lambda-cyhalothrin (Warrior T) (Karate Z)	 1.92-3.2 oz 0.96-1.6 oz	 14 14	**RESTRICTED USE.** Do not apply more than 15.36 oz/A/season. Do not graze livestock in treated areas or use treated vines or hay for animal feed.
	esfenvalerate (Asana XL)	2.9-5.8 oz	21	**RESTRICTED USE.** Do not feed or graze livestock on treated vines. Do not exceed 29 oz/A/season.
	fenpropathrin (Danitol 2.4EC)	6.0-10.6 oz	14	**RESTRICTED USE.** Do not graze or feed treated vine forage or dried hay within 14 days of the last application. Do not exceed 2.6 pt /A/season.
	Gamma-cyhalothrin (Proaxis) (Prolex)	 1.92-3.2 oz 0.77-1.28 oz	 14 14	**RESTRICTED USE**.
Pegging*	chlorpyrifos (Lorsban 15G)			Lorsban 15G is not labeled for use against leafhopper but will provide suppression if applied for soil insects.
	phorate (Thimet 20G)	10.0 lb	90	**RESTRICTED USE.** Distribute granules as a band over the fruiting zone at pegging. Work into the top few inches of soil immediately. Do not graze or feed treated hay or forage to livestock.

* **GENERAL** - *Apply pegging treatments in 10- to 18-inch bands on row from the last week in June through mid-July after pegging begins and before vines close in middles. Effectiveness of treatments is increased if insecticides are covered by shallow cultivation to avoid exposure to sunlight and lateral movement with heavy rains.*

Table 17. Recommended Insecticides for Potato Leafhopper Control (cont.)

Treatment	Insecticide (Formulation)	Amount product per acre	Time limits: days before harvest	Remarks
In-furrow	disulfoton (Di-Syston 15G)	6.7-13.3 lb	–	**RESTRICTED USE.** Place granules in a band on each side of the seed furrow at planting, or as a side dressing after emergence. May also be applied in a band over the row or as a side dressing at pegging. Do not apply directly on the seed. Do not feed treated vines.
	phorate (Thimet 20G)	5.0 lb	90	**RESTRICTED USE.** Distribute granules evenly in the furrow. Do not graze or feed treated hay or forage to livestock.

* **GENERAL** - *Apply pegging treatments in 10- to 18-inch bands on row from the last week in June through mid-July after pegging begins and before vines close in middles. Effectiveness of treatments is increased if insecticides are covered by shallow cultivation to avoid exposure to sunlight and lateral movement with heavy rains.*

Southern Corn Rootworm

The southern corn rootworm, which is the immature stage of the spotted cucumber beetle, can cause extensive injury to the Virginia peanut crop. Rootworm larvae develop in the soil and feed directly on pegs and pods. Finding rootworms in the soil is very difficult and injury is often not detected until after peanuts are dug when it is too late for control measures. A preventive treatment is the best strategy. After an infestation is established, control is difficult and often ineffective. Determining the need to treat for southern corn rootworm should be done on a field-by-field basis. Decisions can be based on both adult populations and past history of peanut fields. Adult beetles can be readily detected in peanut fields. Their presence in moderate to high numbers from mid-July to early August should be a warning that a problem could develop. Adults will lay eggs that could develop into the damaging larval stage. Thus, early detection of adults can allow for timely treatment and prevention of injury.

Knowledge of the past history of rootworm injury also can be useful in determining the need for treatment. If injury has ever occurred in a field, it will likely occur in other years. Keep field records on the extent of pod and peg injury noticed at harvest time. Pay particular attention to fields with higher levels of organic

matter and clay. Rootworms have a higher survival rate in those soils due to higher moisture holding capacity, and injury will typically be more severe than in "light" soils. Use the "Peanut Rootworm Advisory" to aid you in deciding which fields need insecticide treatment.

If rootworm treatments are necessary, they should be applied as 10- to 18-inch bands on the row during early pegging. Usually, this period occurs from the last week in June through mid-July. Treatment effectiveness is increased if materials are lightly incorporated using shallow cultivation. If vine growth and pegging are in an advanced stage, do not cultivate, as vine "dirting," which leads to disease development and injury to pegs, may offset the gain from insect control. Carefully calibrate equipment to deliver recommended insecticide rates. Using more than is recommended will not increase effectiveness and using less could result in a complete insecticide failure.

Table 18. Recommended Insecticides for Southern Corn Rootworm Control

Treatment	Insecticide (Formulation)	Amount product per acre	Time limits: days before harvest	Remarks
Pegging[1]	chlorpyrifos (Lorsban 15G)	13.0 lb	21	Do not apply more than 13.3 lb/season. Do not feed peanut forage or hay to meat or dairy animals.
	phorate (Thimet 20G[2])	10.0 lb	90	**RESTRICTED USE.** Distribute granules as a band over the fruiting zone at pegging. Work into the top few inches of soil immediately. Do not graze or feed treated hay or forage to livestock.

[1] **GENERAL -** *Apply pegging treatments in 10- to 18-inch bands on row from the last week in June through mid-July after pegging begins and before vines close in middles. Effectiveness of treatments is increased if insecticides are covered by shallow cultivation to avoid exposure to sunlight and lateral movement with heavy rains.*

[2] *Label stipulates light soil incorporation.*

Corn Earworm and Fall Armyworm

Annual infestations of the corn earworm and fall armyworm occur in most Virginia peanut fields. Usually there is a single generation of each species per season. Worms feed on leaf tissue causing peanuts to look ragged; however, research has shown that one-third of peanut foliage can be lost at the normal time of corn earworm infestations (mid-August to early September) without loss of yield or grade. Scouting fields is the only way to determine if treatment is needed. Scout by reaching halfway across 2 row-feet of plants and shaking foliage vigorously towards the row middle. Repeat on the opposite row. Count the worms on the ground and repeat the sample in several spots in the field. Treatment is recommended if an average of 8 or more worms are found per sample, or 4 per row-foot. This number should increase to 6 per row-foot later in the season.

If treatment is necessary, apply sprays using systems that provide good canopy penetration and coverage. If spider mites are already present in the field, use of some insecticides may allow for rapid build-up. Scout fields for treatment effectiveness and for possible increases in spider mite activity soon after applications.

Table 19. Recommended Insecticides for Corn Earworm Control

Treatment	Insecticide (Formulation)	Amount product per acre	Time limits: days before harvest	Remarks
Foliar*	carbaryl (Sevin 4F) (Sevin 80S) (Sevin XLR PLUS)	 2.0-3.0 pt 1.25-1.87 lb 2.0-3.0 pt	 0 0 0	To avoid possible injury to foliage, do not apply to wet foliage or during periods of high humidity.
	acephate (Orthene 97)	12.0-16.0 oz	14	Do not feed treated forage or hay to livestock or allow animals to graze treated areas.
	methomyl (Lannate LV) (Lannate SP)	 0.75-3.0 pt 0.25-1.0 lb	 21 21	**RESTRICTED USE.** Do not feed treated vines.
	esfenvalerate (Asana XL)	2.9-5.8 oz	21	**RESTRICTED USE.** Do not feed or graze livestock on treated vines. Do not exceed 29.0 oz/season.
	lambda-cyhalothrin (Warrior T) (Karate Z)	 2.56-3.84 oz 1.28-1.92 oz	 14 14	**RESTRICTED USE.** Do not graze livestock in treated areas, or use treated vines or hay for animal feed. Do not exceed 15.36 oz/A/season.
	fenpropathrin (Danitol 2.4EC)	10.6-16.0 oz	14	**RESTRICTED USE.** Do not graze or feed treated peanut vine forage or dried hay within 14 days of the last application. Do not exceed 2.6 pt/A/season.
	gamma-cyhalothrin (Proaxis) (Prolex)	 2.56-3.84 oz 1.02-1.54 oz	 14 14	**RESTRICTED USE**.
	indoxacarb (Steward 1.25SC)	9.2-11.3 oz	14	Do not feed or graze livestock on treated fields.
	spinosyn (Tracer 4SC)	1.5-3.0 oz	3	Do not allow grazing of crop residue or harvest of crop residue for hay until 14 days after last application.

* **GENERAL** - *Treat ONLY IF foliage loss is heavy (1/3 or more). Earworms are easier to control when they are less than 1/2 inch long.*

Table 20. Recommended Insecticides for Fall Armyworm Control

Treatment	Insecticide (Formulation)	Amount product per acre	Time limits: days before harvest	Remarks
Foliar	methomyl (Lannate LV) (Lannate SP)	 0.75-1.5 pt 0.25-0.5 lb	 21 21	**RESTRICTED USE.** Do not feed treated vines. High rates may be required for good control.
	esfenvalerate (Asana XL)	 9.6 oz	 21	**RESTRICTED USE.** Suppression only. Do not feed or graze livestock on treated vines. Do not exceed 29.0 oz/season.
	acephate (Orthene 97)	 12.0-16.0 oz	 14	Do not feed treated forage or hay to livestock or allow animals to graze treated areas.
	lambda-cyhalothrin (Warrior T) (Karate Z)	 2.56-3.84 oz 1.28-1.92 oz	 14 14	**RESTRICTED USE.** Do not graze livestock in treated areas, or use treated vines or hay for animal feed. Do not exceed 15.36 oz/A/season.
	fenpropathrin (Danitol 2.4EC)	 10.6-16.0 oz	 14	**RESTRICTED USE.** Do not graze or feed treated peanut vine forage or dried hay within 14 days of the last application. Do not exceed 2.6 pt/A/season.
	gamma-cyhalothrin (Proaxis) (Prolex)	 2.56-3.84 oz 1.02-1.54 oz	 14 14	**RESTRICTED USE**.
	indoxacarb (Steward 1.25SC)	 9.2-11.3	 14	Do not feed or graze livestock on treated fields.
	spinosyn (Tracer 4SC)	 2.0-3.0 oz	 3	Do not allow grazing of crop residue or harvest of crop residue for hay until 14 days after last application.

Spider Mite

Mites, which have become more numerous during the past several years, are especially injurious during hot, dry weather. While insecticides are very valuable in controlling leafhoppers, thrips, and worms, they may be responsible for destroying some of the natural enemies of spider mites, thus promoting the build-up of mite populations. Insecticides should be used **only when needed** for insect control. Tank mixes including fungicides and insecticides are more likely to allow spider mite build-up than when either material is used separately.

Spider mites feed mainly on the undersides of the leaves. They suck the juice from the foliage and cause the leaves to turn brown and eventually drop off. Heavy infestations usually first occur around the borders of peanut fields; then they spread inward throughout the fields. Avoid mowing weedy areas next to peanut fields until peanuts are harvested. Spider mites will readily move into peanuts when corn dries down or is harvested. Be prepared to treat peanuts if adjacent corn is infested.

IMPORTANT: If you are going to treat, calibrate your equipment to deliver the right amount of pesticide per acre. Arrange and adjust the nozzles or spouts in a manner that will direct the chemical into the desired area to be treated. Adequate sprayer pressure (40 to 60 psi) will aid in getting chemicals in contact with the undersides of leaves and within denser foliage. Penetration of foliage with 20 to 30 gal of water per acre is very important for the control of spider mites.

Table 21. Recommended Insecticides for Spider Mite Control

Treatment	Insecticide (Formulation)	Amount product per acre	Time limits: days before harvest	Remarks
Foliar	propargite (Comite 6.5EC) (Omite 30W)	 2.0 pt 3.0-5.0 lb	 14 14	Use a minimum of 20 gal/A with ground equipment or 5 gal by air. Make no more than 2 applications/year (either Comite **OR** Omite). Do not plant rotational crops within 6 months of last application. Do not feed hay to livestock.
	aldicarb (Temik 15G)	 7.0 lb	 90	**RESTRICTED USE.** Apply in 12- to 18-inch band on the row at pegging, immediately incorporate into soil. Do not hog-off treated fields. Do not feed green forage, hay, or straw to livestock. Must be applied at the onset of pegging to comply with 90-day tolerance time.
	lambda-cyhalothrin (Warrior T) (Karate Z)	 3.84 oz 1.92 oz	 14 14	**RESTRICTED USE.** **Suppression only**. Do not graze livestock in treated areas or use treated vines or hay for animal feed. Do not exceed 15.36 oz/A/season.
	gamma-cyhalothrin (Proaxis) (Prolex)	 3.84 oz 1.54 oz	 14 14	**RESTRICTED USE.** **Suppression only**.
	fenpropathrin (Danitol 2.4EC)	 10.6-16.0 oz	 14	**RESTRICTED USE.** Do not graze or feed treated vine forage or dried hay within 14 days of the last application. Do not exceed 2.6 pt/A/season.

Lesser Cornstalk Borer

Lesser cornstalk borer typically is not a problem in Virginia peanut fields. However, it does thrive under hot dry conditions and can become a problem when those conditions continue for 3 to 4 weeks. Infestations will be most severe where soils are sandy and in high, well drained areas within fields. Larvae are 0.5 to 0.75 inch long and are banded with alternating brown and blue stripes. They wiggle vigorously when disturbed. Larvae feed by burrowing into main stems, lateral limbs, plant crowns, and pods and can do extensive damage, even kill plants. Larvae produce a silk-and-sand web tube which is attached to pods or stems at the point of feeding. Evidence of web tubes is a sure sign of borer activity.

If weather conditions become favorable for borers, survey fields for damaged plants and larvae. If damage is obvious and active larvae are still present in 10 percent or more of the plants, treatment is recommended.

Table 22. Recommended Insecticides for Lesser Cornstalk Borer Control

Treatment	Insecticide (Formulation)	Amount product per acre	Time limits: days before harvest	Remarks
Granular	chlorpyrifos (Lorsban 15G)	6.7-13.3 lb	21	Apply in 10- to 18-inch band on row at first sign of borer. Do not feed peanut forage or hay to meat or dairy animals. Do not apply more than 13.3 lb/ season. 10.0-13.0 lb may be broadcast by air as a rescue treatment.

Table 23. Recommended Insecticides for Grasshopper Control

Foliar	carbaryl (Sevin 80S) (Sevin XLR PLUS)	1.5 lb 1.0-2.0 pt	0 0	To avoid possible injury to foliage, do not apply to wet foliage or during periods of high humidity.
	acephate (Orthene 97)	4.0-8.0 oz	14	Do not feed treated forage or hay to livestock or allow animals to graze treated areas.
	esfenvalerate (Asana XL)	5.8-9.6 oz	21	**RESTRICTED USE.** Do not feed or graze livestock on treated vines. Do not exceed 29.0 oz/season.

Pesticide Usage Charts

Many pesticides control more than one pest. The three following tables summarize the effectiveness of some popular pesticides used at time of planting, at time of pegging, or as foliar treatments for the control of major insect pests which attack peanuts.

Table 24. Insecticide Activity of Products Applied at Time of Planting

	Pests			
Chemical	**Thrips**	**Leafhopper**	**Rootworm**	**Spider Mite**
Temik	E	Early	P	May Aid Early
Di-Syston	G	Early	P	No
Thimet	G	Early	P	No
Orthene	E	Early	No	No

Table 25. Insecticide Activity of Granules Applied at Time of Pegging

	Pests			
Chemical	**Rootworm**	**Leafhopper**	**Spider Mite**	**Corn Earworm**
Thimet	G	Aids	No	No
Temik	P	Aids	G	No
Lorsban[1]	E	G	No	No

[1] *NOT SYSTEMIC. Do not apply in the furrow.*

P=poor control, F=fair control, G=good control, E=excellent control, No=not labeled or no activity expected.

Table 26. Insecticide Activity of Foliar Treatments Applied When Pests are Present

		Pest Species Controlled						
Insecticide	Formulation	Thrips	Leaf-hopper	Root-worm	Corn Ear-worm	Fall Army-worm	Less Corn-stalk Borer	Spider Mite
Sevin[2]	4F, 80S, XLR PLUS	P	E	No	F	F	No	No
Malathion	57%EC	P	G	No	P	P	No	P
Lannate	L	P	G	No	E	G	No	No
Comite, Omite	6.5EC, 30W	No	No	No	No	No	No	E
Asana[2]	XL	No	E	No	E	G	No	No
Orthene[2]	97	E	E	No	G	F	No	No
Karate	Z	E	E	No	E	G	No	F
Danitol	2.4EC	No	E	No	E	G	No	E
Steward	1.25SC	No	No	No	E	E	No	No
Tracer	4SC	No	No	No	E	E	No	

There are other insecticides and other formulations which have federal registration for use on peanuts.

[2] *Use of these insecticides may allow rapid build-up of spider mites. Use with caution during extended periods of dry weather.*

P=poor control, F=fair control, G=good control, E=excellent control, No=not labeled or no activity expected.