# PEANUT INSECT MANAGEMENT

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**See the following tables for insect control recommendations, active ingredient concentrations and use precautions.** In many cases, controlling peanut volunteers in rotation years helps prevent insect population buildup and damage in the following year.

**Thrips** cause serious crop stunting and yield loss from both direct feeding and virus transmission (tomato spotted wilt). All commercial peanuts planted in S. C. should be treated at planting with a preventative in-furrow insecticide (Thimet 20G). Admire Pro in-furrow (10 fl oz) can also be used for thrips control; however, since Admire Pro often increases virus, it benefits from being paired with highly virus-resistant varieties (e.g., Bailey, Sullivan, TifNV-High O/L). Immediate foliar application of Orthene is recommended if in-furrow treatment fails to prevent thrips stunting.

**Potato leafhopper** feeding causes peanut leaflets to turn yellow at the tip in a V-shaped pattern (hopperburn). This chlorotic symptom is often confused with nutrient deficiency. Hopperburn typically begins on field borders. If 15 to 20% of the entire field becomes affected and adults are still present, treat by mixing a recommended insecticide in with the next fungicide application. Bailey, Sugg, Sullivan and Wynne are particularly susceptible.

**Threecornered alfalfa hoppers** are green, wedge-shaped insects that feed by piercing peanut laterals, stems, and leaf petioles. The circular feeding pattern forms a girdle around the stem which blocks the flow of plant sugars. Girdles may cause the affected branch of the plant to wilt and even snap off if bent. Plants often put out above-ground (adventitious) roots at the wound site on lower stems. In SC, girdling activity increases significantly in July. The risk of economic injury is apparently greater on runner types with small plant size. Pyrethroid insecticides are effective against hoppers, but these can flare secondary pest problems like spider mites that can be more damaging.

**Soil Insects:**

**Lesser cornstalk borers** attack pods, pegs, lateral stems and the crown at the soil line during extended drought stress. Fields with lighter soils are particularly vulnerable. In addition to losses from direct injury, LCB damage is associated with increased white mold and aflatoxin levels due to the wounds it causes. Rapid canopy closure and reduced soil temperatures lower LCB risk. Irrigation is the best defense against lesser cornstalk borer. Granular Lorsban (13 lb/A) can be applied at pod set (about 50 – 55 DAP) to high risk fields (sandy soils under drought stress). About 1/4" rain/irrigation is needed within 10 days of application for Lorsban to be effective. Lorsban also reduces pod damage from wireworm, burrower bugs, and southern corn rootworm feeding. Unfortunately, Lorsban kills predatory insects and causes outbreaks of corn earworm, granulate cutworm and spider mites under drought stress later in the season. Late fall tillage before planting covers can help reduce but will not eliminate LCB winter survival. LCB damage is typically less severe under reduced-tillage.

**Burrower bugs** primarily attack reduced-tillage peanut fields under drought stress. These are essentially underground stink bugs which feed directly on kernels by piercing pods with their needle-like mouthparts. In addition to direct yield and grade loss (reduced kernel weight), burrower bug damage can lead to Seg. II loads and increased aflatoxin levels (Seg. III). Irrigation is also the best defense against burrower bug injury. Late fall tillage can help reduce but will not eliminate burrower bug winter survival. Lorsban application can significantly reduce burrower bug damage but must be applied preventatively (July). Lorsban is not routinely recommended for managing burrower bug (see LCB comments above about associated outbreaks).

**Wireworms** are immature or larval stages of click beetles that commonly feed on peanut pods. Although wireworms are capable of causing significant injury, thus far economic damage to peanut has been minimal under S. C. conditions. The only practical treatment for wireworms is preventative Lorsban application.

**Southern corn rootworm** is the immature stage of the eleven-spotted cucumber beetle. This worm tunnels into peanut pods under high soil moisture conditions, usually in more organic soils such as found in bottom areas, particularly under irrigation. Rootworm injury has been a relatively minor concern thus far under S. C. conditions.

**Foliage Caterpillars:**

**Corn earworm** is the most common foliage feeding insect on peanuts. Corn earworms usually appear in peanut fields during the last week of July or first week of August after the moths emerge from corn fields. Corn earworms initially feed in plant terminals, then blooms, older leaves and pegs as they mature. It is difficult to separate corn earworm from tobacco budworm with the naked eye; several non-pyrethroid products are effective on both.

**Fall armyworms** are not usually an economic problem on peanut, but they can occur in very high numbers during outbreak years. Infestations typically occur in mid-August, a couple weeks after corn earworms first appear.

**Granulate cutworm** can defoliate small plants in June and can also be a problem late in August where Lorsban was previously used because Lorsban kills fire ants and other predators. Granulate cutworms have distinctive Chevron or "sergeant stripe" markings along the back. Granulate cutworms initially feed on blooms, then leaves, pegs and pods as they mature. During the day cutworms can be found curled up under shed leaves and other organic matter on the soil surface. The larvae climb up the plant at night to feed. Symmetrical feeding damage (from feeding when the leaves are folded at night) is a clue to look for granulate cutworms on and in the soil.

**Velvetbean caterpillars** can rapidly defoliate late maturing peanuts during late August to October in southern coastal plain counties of S. C, especially Jasper, Hampton, Allendale and Colleton counties. Velvetbean caterpillars range from light green to almost black. A key characteristic is medium to large worms thrash violently when handled. Moths land with their wings out and have a line that stretches wing tip to wing tip. They are easy to control.

**Scouting for Foliage Caterpillars:**

Use a 3' shake cloth to look for worms starting the last week of July. Work the dowel handle up under lateral stems to the plant crown and bend the other side of the plants over the cloth. Beat down vigorously 15 times to knock worms onto the cloth. Shake the plants, bend them back out of the way and count the worms on the cloth. Also count worms under the cloth on both sides of the row to calculate worms/row ft. Check at least three areas/field.

Rank-growing, unstressed peanuts with a closed canopy can tolerate 8 foliage feeding worms per row ft. The treatment threshold is 4 worms per row ft on stressed plants which have not lapped the middle or where Lorsban has previously been applied. Runner varieties with slow growing canopies can be more susceptible to direct injury from foliage feeding. Weed control may also be affected by delayed canopy closure on runner varieties. Irrigation, vigorous canopy growth, and avoidance of unnecessary early season insecticide applications are the best defense against foliage-feeding worms.

Spider mites can damage drought stressed peanuts in August and September. Stressed fields should be spot checked for yellow "hits" indicating where mites are feeding. Spider mites can be seen with a hand lens on the underside of leaflets. Webbing may be present with heavy infestation. These twospotted spider mites get their name from the two spots (one on each side) on their body. Mite suppression requires ground application, thorough coverage, and potentially a second application in 5-7 days. Lorsban or pyrethroid application greatly increases the risk of mite outbreaks. Irrigation is the best defense against spider mite injury.

## PEANUT INSECT CONTROL

| Sucking/Piercing/Rasping Pests | | | |
|---|---|---|---|
| **Insect** | **Product** | **Rate/A** | **Comments** |
| **Thrips In-furrow** | Thimet 20G | 4.7 lb (38" rows) | Preventative in-furrow thrips control is a must on all peanuts planted in S.C. |
| | Admire Pro | 10 fl oz | Maximum labeled Thimet rate is 5.5 oz/1,000 row ft, equivalent to 4.7 lb/A on 38", 5.0 lb on 36", and 6.0 lb on 30" rows. Twin rows: use 3.5 oz/1,000 row ft in each row, which equals 6.0 lb/A on 38" centers. |
| | Velum Total | 18 fl oz | **Admire Pro and Velum Total control thrips but usually increase tomato spotted wilt virus. Recommended to pair with highly virus-resistant varieties (e.g., Bailey, Sullivan).** |
| | AgLogic 15G | 7 lb | Twin rows: max labeled rate for Admire Pro is 10.5 fl oz/A/season. Splitting 5 fl oz into each row will usually require follow up with foliar Orthene for adequate thrips suppression. |
| **Thrips Foliar** | Exirel | 13.5-20.5 fl oz | Apply foliar Orthene immediately if in-furrow treatments do not prevent thrips stunting. Diamond suppresses immature thrips; it will not control adults. Exirel at cracking for thrips suppression. |
| | Orthene 75S | 0.5-1.0 lb | |
| | Orthene 97SP | 0.375-0.75 lb | |
| | Diamond 0.83EC | 6-12 fl oz | |
| **Leafhoppers** | Besiege 1.25 SC* | 5.0-8.0 fl oz | Hopperburn starts on field borders usually in June - July. Treat if hopperburn is spreading across the field and approaching 15-20% symptomatic leaflets. Bailey and Sugg varieties are particularly susceptible to hopperburn. |
| | Orthene 75S | 0.6-1.0 lb | |
| | Orthene 97SP | 0.5-0.75 lb | |
| | **Pyrethroids** | | |
| | Asana XL 0.66EC | 3.9 fl oz | |
| | Baythroid XL 1EC | 1.0-1.8 fl oz | |
| | Brigade 2EC | 2.1-6.4 fl oz | |
| | Declare 1.25CS | 1-1.5 fl oz | *Besiege is a pyrethroid + diamide mix. For control of both hoppers and worms, use worm rates below. |
| | Karate Z 2.08CS | 1.0-1.6 fl oz | |
| | Mustang Max 0.8EC | 1.75-4 fl oz | |
| | Proaxis 0.5CS | 1.9-3.2 fl oz | |
| **Spider mites** | Comite II | 2.25 pt | Use ground application, 20 gal/A at 40-60 psi. Repeat appl. after 5-7 days. Lorsban or pyrethroids can cause mite outbreaks. Avoid unnecessary worm insecticides to reduce mite risk. **Irrigation is the best mite defense.** Use of pyrethroids labeled for spider mite control (e.g., Danitol) is <u>not</u> recommended. |
| | Omite 30WS | 3-5 lb | |
| **Three-cornered alfalfa hopper** | Besiege 1.25 SC* | 5.0-8.0 fl oz | Treat at 45-60 days after planting to prevent injury. |
| | Orthene 75S | 0.65 lb | |
| | Orthene 97SP | 0.5 lb | |
| | **Pyrethroids** | | |
| | Baythroid XL 1EC | 1.8-2.4 fl oz | |
| | Brigade 2EC | 2.1-6.4 fl oz | |
| | Declare 1.25CS | 0.8-1.3 fl oz | *Besiege is a pyrethroid + diamide mix. For control of both hoppers and worms, use worm rates below. |
| | Karate Z 2.08CS | 1.0-1.6 fl oz | |

**Foliage Feeding Worms**

| Insect | Product | Rate/A | Comments |
|---|---|---|---|
| **Beet armyworm,**<br><br>**Fall armyworm,**<br><br>**Soybean looper** | Besiege 1.25 SC<br>Blackhawk 36 WDG<br>Coragen 1.67 SC<br>Exirel 0.83 SE<br>Diamond 0.83EC<br>Intrepid Edge 3F<br>Prevathon 0.43 SC<br>Radiant 1 SC<br>Steward 1.25 SC | 6-10 fl oz<br>1.7-3.3 oz<br>3.5-5.0 fl oz<br>13.5-20.5 fl oz<br>6-12 fl oz<br>4-8 fl oz<br>14-20 fl oz<br>3-8 fl oz<br>9.2-11.3 fl oz | Unstressed plants with a large, closed canopy can tolerate 8 total worms/row ft. Treat if populations reach 4/row ft on drought stressed, unlapped peanuts or on fields previously treated with Lorsban. Fall armyworm attacks peanut in outbreak years from mid-August to early September. Loopers seldom significantly defoliate peanuts by themselves but typically occur with other defoliators. If Besiege or Coragen are used for loopers or beet armyworms, use the maximum labeled rate. Exirel not labeled for beet armyworm. |
| **Corn earworm** | Besiege 1.25 SC<br>Blackhawk 36 WDG<br>Coragen 1.67 SC<br>Exirel 0.83 SE<br>Intrepid Edge 3F<br>Lannate 2.4 LV<br>Lannate 90 SP<br>Prevathon 0.43 SC<br>Radiant 1 SC<br>Steward 1.25 SC<br>**Pyrethroids**<br>Asana XL 0.66 EC<br>Baythroid XL 1EC<br>Brigade 2 EC<br>Danitol 2.4 EC<br>Declare 1.25 CS<br>Karate Z 2.08CS<br>Mustang Max 0.8EC<br>Proaxis | 6-10 fl oz<br>1.7-3.3 oz<br>3.5-5.0 fl oz<br>10-20.5 fl oz<br>4-8 fl oz<br>12-18 fl oz<br>0.25-0.38 lb<br>14-20 fl oz<br>3-8 fl oz<br>9.2-11.3 fl oz<br><br>3.9-5.8 fl oz<br>1.8-2.4 fl oz<br>2.1-6.4 fl oz<br>10.6-16 fl oz<br>1.0-1.5 fl oz<br>1.3-1.9 fl oz<br>3.2-4 fl oz<br>2.5-3.8 fl oz | Same threshold as for beet armyworm. Peanuts can often withstand significant defoliation (at least 30%) prior to pegging. We have not measured any yield response to treating early season earworm infestations. However, weed control on small canopy runners may be affected by delayed canopy closure.<br><br>**Corn earworm is difficult to separate from tobacco budworm with the naked eye; several non-pyrethroid products are effective against both.** |
| **Tobacco budworm** | Besiege 1.25 SC<br>Blackhawk 36 WDG<br>Coragen 1.67 SC<br>Exirel 0.83 SE<br>Intrepid Edge 3F<br>Prevathon 0.43 SC<br>Steward 1.25 SC | 6-10 fl oz<br>1.7-3.3 oz 3.5-5.0 fl oz<br>10-20.5 fl oz<br>4-8 fl oz<br>14-20 fl oz<br>9.2-11.3 fl oz | Same threshold as for beet armyworm. Peanuts can withstand significant defoliation (at least 30%) prior to pegging. We have not measured any yield response to treating early season budworm infestations. However, weed control on small canopy runners may be affected by delayed canopy closure.<br>See corn earworm comment. |
| **Velvetbean caterpillar** | Besiege 1.25 SC<br>Blackhawk 36 WDG<br>Coragen 1.67 SC<br>Diamond 0.83EC<br>Dimilin 2L<br>Intrepid Edge 3F<br>Prevathon 0.43 SC<br>Radiant 1 SC<br>**Pyrethroids**<br>Asana XL 0.66 EC<br>Baythroid XL 1EC<br>Brigade 2 EC<br>Danitol 2.4 EC | 5-8 fl oz<br>1.7-3.3 oz<br>3.5-5.0 fl oz<br>6-8 fl oz<br>2.0 fl oz<br>4-8 fl oz<br>14-20 fl oz<br>3-8 fl oz<br><br>3.9-5.8 fl oz<br>1.8-2.4 fl oz<br>2.1-6.4 fl oz<br>10.6-16 fl oz | Velvetbean caterpillar is a late season pest (Sep - Oct) that can defoliate peanuts quickly. This pest is usually easy to control but often misidentified as an armyworm, leading to unnecessary treatment cost.<br><br>Adding Dimilin 2L (2 fl oz/A) to the last fungicide treatment will prevent VBC in high risk areas (southern coastal plain counties). **Do not use Dimilin to control established populations.**<br><br>**Note:** Steward is one of the few insecticides that <u>will not</u> control velvetbean caterpillar. |

| Insect | Product | Rate/A | Comments |
|---|---|---|---|
| Velvetbean caterpillar (continued) | **Pyrethroids**<br>Declare 1.25 CS<br>Karate Z 2.08 CS<br>Mustang Max 0.8EC<br>Proaxis 0.5 CS | <br>1.0-1.5 fl oz<br>1.3-1.9 fl oz<br>1.3-4 fl oz<br>2.5-3.8 fl oz | |
| **Soil Insects** | | | |
| Burrower bug,<br><br>Lesser cornstalk borer,<br><br>Southern corn rootworm,<br><br>Wireworms | Lorsban 15 G<br><br>Lesser cornstalk borer and southern corn rootworm:<br>Besiege 1.25 SC<br>Diamond 0.83EC<br><br>Wireworms only:<br>Lorsban 4E<br>(at planting)<br><br>Lesser cornstalk borer only:<br>Exirel 0.83 SE<br>Prevathon 0.43 SC | 13.3 lb<br><br><br><br>10 fl oz<br>6-12 fl oz<br><br><br>4 pt<br><br><br><br>13.5-20.5 fl oz<br>14-20 fl oz | Apply Lorsban 15G with a 5" bander directly over the row the first week of July. Some rain (~0.2") is needed within 10-14 days of application to be effective. Lorsban often causes spider mite and worm outbreaks. Burrower bug injury almost always occurs in reduced tillage fields under severe late season (Aug to early Sep) drought stress. Lesser cornstalk borer injury only occurs under severe drought stress.<br><br>**Irrigation is the best defense against burrower bug or lesser cornstalk borer injury.**<br><br>Besiege, Diamond, Exirel, or Prevathon for lesser cornstalk borer – apply at first signs of feeding before pests reach damaging levels. |
| Granulate cutworm | Besiege 1.25 SC<br>Coragen 1.67 SC<br>Exirel 0.83 SE<br>Prevathon 0.43 SC<br>Steward 1.25 SC | 8-10 fl oz<br>4-5.0 fl oz<br>13.5-20.5 fl oz<br>20 fl oz<br>9.2-11.3 fl oz | Treat if defoliation exceeds 30% on small plants in June or about 50-55 DAP. Previous Lorsban treatment triggers cutworm outbreaks in August. Granulate cutworms are now resistant to pyrethroids. |
| **Note: there are many generic insecticide brands, particularly for pyrethroids. For equivalent rates compare active ingredient concentrations to the following table. Also see pre-harvest interval and use precautions. The label is the law. Always read and follow all pesticide label restrictions.** | | | |

## PEANUT INSECTICIDE ACTIVE INGREDIENTS & USE PRECAUTIONS

| Active ingredient | Brand name and formulation | IRAC* Group | PHI (Days) | Comments |
|---|---|---|---|---|
| Acephate | **Orthene 75S**<br>**Orthene 97SP** | 1B | 14 | Do not feed or graze. |
| Aldicarb | **AgLogic 15G** | 1A | 90 | Do not feed or graze.<br>Do not exceed 17 lb/A/season. |
| Chlorpyrifos | **Lorsban 15G** | 1B | 21 | Do not exceed 26.6 lb/A/season. |
| Diamides | | | | |
| Chlorantraniliprole | **Coragen 1.67 SC**<br>**Prevathon 0.43 SC** | 28<br>28 | 1<br>1 | Do not exceed 4 appl. per season or 0.2 lb a.i. of chlorantraniliprole per acre/season. |
| Chlorantraniliprole + lambda-cyhalothrin | **Besiege 1.25 SC** | 28<br>3A | 14 | Do not exceed 31 oz/A/season. |
| Cyantraniliprole | **Exirel 0.83 SE** | 28 | 14 | Do not exceed 0.4 lb a.i. per acre per year. |
| Diflubenzuron | **Dimilin 2L** | 15 | 28 | Do not exceed 3 appl. per season. |
| Imidacloprid | **Admire Pro 4.6F**<br>**Velum Total 2.17F** | 4A | 14 | Increases tomato spotted wilt virus; use only on highly resistant varieties. Do not feed or graze. |
| Indoxycarb | **Steward 1.25 SC** | 22 | 14 | Do not exceed 45 fl oz/A/season. |
| Methomyl | **Lannate 2.4 LV**<br>**Lannate 90 SP** | 1A | 21 | Do not feed or graze. |
| Methoxyfenozide + spinetoram | **Intrepid Edge 3F** | 18<br>5 | 7 | Do not exceed 3 appl./season. Max 1 lb methoxyfenozide or 0.188 lb spinetoram/A/season.<br>Do not feed or graze. |
| Novaluron | **Diamond 0.83EC** | 15 | 28 | Do not exceed 36 fl oz/A/season.<br>Do not feed or graze. |
| Phorate | **Thimet 20G** | 1B | 90 | Do not exceed 5.5 oz/1000 row ft or 7.5 lb/A.<br>Do not feed or graze. |
| Propargite | **Comite II 6 EC**<br>**Omite 30WS** | 12C | 14 | Do not exceed 2 appl. per season.<br>Do not feed or graze. |
| Pyrethroids | | | | |
| Beta-cyfluthrin | **Baythroid XL 1 EC** | 3A | 14 | Do not exceed 0.066 lb ai/A/season. |
| Bifenthrin | **Brigade 2 EC** | | 14 | Do not exceed 0.5 lb ai/A/season.<br>Do not feed or graze. |
| Esfenvalerate | **Asana XL 0.66 EC** | | 21 | Do not feed or graze. |
| Fenpropathrin | **Danitol 2.4 EC** | | 14 | Do not feed forage or hay within 14 days of treatment.<br>Do not exceed 2.66 pt/A/season. |
| Gamma-cyhalothrin | **Declare 1.25 CS**<br>**Proaxis 0.5 CS** | | 14 | Do not exceed 0.38 pt/A (Declare) or 0.96 pt/season (Proaxis). |
| Lambda-cyhalothrin | **Karate Z 2.08 CS** | | 14 | Do not feed or graze. |
| Zetamethrin | **Mustang Max 0.8EC** | | 7 | Do not exceed 0.15 lb ai/A/season.<br>Do not feed or graze. |
| Spinetoram | **Radiant 1 SC** | 5 | 3 | Do not exceed 3 appl. per season.<br>Do not feed or graze. |
| Spinosad | **Blackhawk 36 WDG** | 5 | 3 | Do not exceed 9 fl oz/A/season. |

*IRAC group number (Insecticide Resistance Action Committee) indicates mode of action. Repeated pest exposure to the same mode of action increases the risk of insecticide resistance.

**Note: there are many generic insecticide brands, particularly for pyrethroids. For equivalent generic rates compare active ingredient concentrations to this table. The label is the law. Always read and follow all pesticide label restrictions.**