

# 2007 Peanut Disease and Insect Guidebook



Sources: Auburn University, Clemson University  
and University of Georgia



# Disease management in peanuts for 2007

**F**or most peanut growers in the Southeast, the main focus of the 2006 season was on severe drought and not on disease management issues, with the exception of white mold that became problematic later in the season.

Despite predictions that spotted wilt would be severe in the 2006 season, based upon an assessment of weather conditions during the spring, this important disease

was fairly mild for most growers in 2006. We estimate that losses to spotted wilt in 2006 were around 2.5 percent, which is one of the lowest loss estimates for this disease in years. It is not possible (or necessarily helpful) to predict the severity of spotted wilt in 2007. Growers are simply reminded that the best way to minimize their risk is to adhere as closely as possible to the guidance provided in the 2007 UGA Peanut Disease Risk Index.

White mold became a real problem



## New strategy - prescription fungicide program

“Prescription fungicide programs” are defined as strategies designed to maximize yields and maintain disease control in a field using the appropriate number and type of fungicide applications based upon the risk to disease in the field. The goal of prescription fungicide programs is to use the right amount of fungicide for the level of disease expected in a field and to modify the fungicide use as the risk of disease increases or decreases as the season progresses.

Fields where the risk to disease is high, for example where fields have shorter crop rotation, are planted to less resistant varieties, and weather favors disease development should receive at least seven fungicide applications during the season, and perhaps more.

Fields where the risk to disease is reduced to a low or moderate level, for example where fields have longer rotations and are planted to more resistant varieties, typically do not need the same fungicide program as a higher risk field in order to maximize yields, says Bob Kemerait, University of Georgia peanut pathologist. Research data from many on-farm and small plot studies conducted at the University of Georgia have demonstrated that growers who manage their crop so as to reduce the risk to leaf spot, white mold, and *Rhizoctonia* limb rot can also reduce the number of fungicide applications and increase the value of their crop by cutting production costs. “In low risk fields, it is quite possible to reduce the number of fungicide applications from seven to four, so long as the grower is willing to watch the field to insure that disease does not begin to develop unnoticed,” Kemerait says.

In the past growers using a reduced spray program were not covered by crop protection companies if there was a problem. Syngenta has now developed a prescription program where growers will be covered when and if there are problems with reduced sprays.

“Syngenta is excited about working with the authors of the Peanut Disease Risk Index to offer Southeast peanut growers the best and most current information about disease control in peanuts,” says Lyle Stewart, district manager for Syngenta Crop Protection. “We are confident that our prescription peanut program will allow growers to make the most informed decisions for maximizing profits from their peanut crop.”

Program specifics are currently being finalized, and more information will be available about this new program in the coming weeks. Growers interested in developing prescription programs should first assess the risk in their field(s) using the UGA Peanut Disease Risk Index and then contact their local county agent for guidance on a suitable fungicide program. ◀

for many peanut growers across the Southeast in 2006. Despite dry conditions, the warm soils favored the development and spread of this disease. Also, many growers began to stretch the interval between fungicide applications due to the lack of rainfall. In delaying fungicide applications, some growers likely allowed the white mold epidemic to develop without proper control measures in place.

Peanut pod rot was an important problem for a number of growers last season, especially those in the eastern part of Georgia around Emanuel, Jefferson, and Burke Counties. The problem was most prevalent in dryland fields where growers had planted varieties with larger pods, such as AP-3. Despite apparently adequate levels of calcium in the soil, the dry conditions did not allow for sufficient uptake of calcium by the pods in some cases, thus resulting in severe pod rot. Despite the problems with varieties like AP-3, growers should recognize that this variety offers an excellent disease package, especially for spotted wilt and white mold. Although growers in dryland areas may be hesitant to grow this variety again, it has performed very well under irrigated conditions and with adequate rainfall.

Although the 2006 season is now history, it offered peanut growers in the southeast many lessons for peanut production in the future. Most importantly for 2007, prior planning and timely management strategies are the keys to successful peanut disease control. ◀

## New Labels for 2007

**Trilex Optimum or Trilex Star:** Two new seed treatments will be available to growers this year. Research at the University of Georgia conducted by Tim Brenneman, plant pathologist, finds that all seed treatments, Vitavax PC, Dynasty PD, and Trilex Optimum, perform very well in improving plant stand over seed that has not been treated with a fungicide. In the past, growers had to make a special request for seed to be treated with Dynasty PD. Now, the seed supplier will make the decision on whether to treat with Dynasty PD, Trilex Optimum, or Vitavax PC.

**Generic Formulations of Folicur:** In 2007, growers will have access to a number of generic formulations of tebuconazole (the active ingredient in Folicur). Some of these include TriSum (Cerexagri-Nisso), Integral (Luxembourg), Tebustar (Albaugh), Muscle and Muscle-Echo co-pack (Sipcam), Orius (MANA), and Tebuzol (UPI). These generic formulations of tebuconazole should be used like Folicur in a fungicide program. According to Bob Kemerait, University of Georgia peanut pathologist, these formulations should perform like Folicur; however we at the University of Georgia have not tested each one of them in replicated fungicide trials. It is possible that some products are produced better than others and will thus perform better than others in the peanut field, he says.

**Provost:** A new fungicide mix, Provost, is a pre-mix of tebuconazole (Folicur) and prothioconazole (Proline) available from Bayer CropScience. Provost will be used in a 4-block program like Folicur has been. From data collected at the University of Georgia, Provost offers excellent control of leaf spot diseases and control of white mold, Rhizoctonia limb rot, and CBR control that is at least as good as Folicur. The prothioconazole fungicide appears to have very good activity against CBR, especially when used in-furrow as Proline. Proline (prothioconazole alone) will likely be marketed as an in-furrow treatment beginning in 2008. The rate of application of Provost will vary somewhere between 8 and 10.5 fl oz/A depending on the severity of disease in a field.

**Evito 480SC:** A new strobilurin fungicide (in the same class as Headline and Abound) that will be available for peanut growers in 2007. Evito is labeled to be used on peanut at 5.7 fl oz/A and on a similar 2-application timing to Abound (approximately 60 and 90 days after planting) for control of leaf spot and soilborne diseases. According to Kemerait, there is limited data from the University of Georgia on this product so growers are advised to use Evito cautiously (e.g. on limited acreage) until researchers have a better understanding of its performance in the field.

## Top 10 Tips for Improving Peanut Disease Control

- 1) Use the Peanut Disease Risk Index to develop a production plan to reduce risk to disease.
- 2) Practice good crop rotation (e.g. peanuts in a field no more than once every 3 years) and know the disease history of each field.
- 3) Plant peanut varieties that have greater disease resistance.
- 4) Spend time scouting your fields watching for the onset of diseases.
- 5) Spray your peanut fields with fungicides on a preventative basis, i.e. do not let diseases get ahead of you and use a fungicide spray advisory, such as AU-pnut, to optimize timing of fungicide sprays.
- 6) Insure that sprayers are carefully calibrated and maintained to maximize efficacy and coverage of fungicide applications.
- 7) Consider using fungicides with systemic activity at critical times during the season.
- 8) Insure seeds are treated with an effective fungicide package and plant when conditions favor vigorous germination and rapid growth (neither cool and wet nor hot and dry!).
- 9) When possible, time fungicide sprays for control of soil-borne diseases in anticipation of rainfall or irrigation events approximately 12-36 hours after application.
- 10) If weather conditions become favorable for spread of disease (especially if unusually wet), be prepared to shorten the interval between fungicide applications.

## Growing concern of Tebuconazole resistance

There is growing evidence that leaf spot pathogens are becoming more resistant to tebuconazole so growers should be cautious and manage their disease control options. According to Bob Kemerait, University of Georgia Extension peanut pathologist, if farmers grow peanuts under conditions that favor leaf spot diseases, such as planting a more susceptible variety, poor crop rotation, or extended periods of wet weather, then they should consider taking additional steps for disease management.

One of those steps is tank-mixing a reduced rate of a second fungicide for leaf spot control with 7.2 fl oz of tebuconazole. In three years of studies good tank-mix partners with tebuconazole included chlorothalonil (0.75 pt/A or 0.7 lb/A) and Topsin 4.5F (5 fl oz/A with two of the tebuconazole applications). In 2007 Sipcam is introducing Muscle-Echo, a co-pack of tebuconazole and chlorothalonil.

Bayer CropScience is also introducing a new fungicide pre-mix, Provost which is a combination of tebuconazole and prothioconazole. This product should also be used in a 4-block spray program similar to Folicur. ◀

*Special thanks to Bob Kemerait, University of Georgia (UGA) Extension Peanut Pathologist, Tim Brenneman, UGA plant pathologist and Albert Culbreath, UGA plant pathologist, for providing information for the 2007 Disease Guidebook.*



## When should fungicide applications be modified from the 14-day interval?

The interval should be shorter than every 14-days if conditions:

- ◆ Rainfall has been abundant and conditions are favorable for leaf spot.
- ◆ You are using the AU-PNUT leaf spot advisory and it calls for an early application.
- ◆ Peanuts follow peanuts in a field and leaf spot is expected to be severe.
- ◆ Rainfall came on quickly after your last leaf spot spray and you are concerned that some of the fungicide may have been washed off the plants in the field too quickly.
- ◆ You are planting a variety that has poor resistance to leaf spot diseases.
- ◆ Peanut rust appears in your field prior to the end of the season.

It may be possible to extend the spray interval beyond 14-days if:

- ◆ Conditions have been dry and unfavorable for leaf spot, especially if you use the AU-PNUT advisory for spray guidance.
- ◆ You are using a variety with increased resistance to leaf spot, such as C99-R, Tifrunner, or GA-01R. For example, if pressure from soilborne diseases is not severe, the spray interval for C99-R could be every 21 days while it is possible to treat DP-1 only three times during the season. The real concern for these varieties is not leaf spot control, but control of *Rhizoctonia* limb rot.
- ◆ You use the Peanut Disease Risk Index and find that the predicted risk of fungal disease in a field is low to moderate and rainfall has not been excessive since your last spray.
- ◆ Since many fungicide applications are used to manage leaf spot diseases and soilborne diseases, one must consider the effect that an extended spray schedule would have on both types of disease (foliar and soilborne) before shifting from a 14-day schedule. ◀

Additional information can be obtained from your local Extension Agent. The 2007 UGA Peanut Update is available online at [www.ugapeanuts.com](http://www.ugapeanuts.com) with additional information on disease control.

Can you identify these diseases?



Answers to Disease Identification section at top of the page.  
 1. CBR 2. Funky Leaf Spot 3. Early Leaf Spot 4. Late Leaf Spot 5. White mold sclerotia 6. Rhizoctonia limb rot 7. Underground white mold 8. White mold sclerotia 9. Wilted plant with white mold 10. Peanut rust



# 2007 Peanut Insect Management Guide

**L**ast year was certainly far from a normal year as far as peanut production goes! And it also was far from a normal year for insect management in our peanut crop in the southeast. So, what do we expect or predict for the 2007 peanut crop? I gave up trying to prognosticate what biological systems will do several years back- it can get you into a tough spot.

With that said, there is nothing wrong with having a plan for managing insect or other pests in peanuts. Based upon weather conditions and resulting changing pest populations, we do need to be somewhat flexible in putting our pest management program for peanuts into practice. This is where scouting, monitoring or whatever you want to call it comes into play. Thirty-two years of scouting peanuts and monitoring peanut scouting programs has proven to me that it is a worthwhile and economically smart plan for peanut production in the southeast.

The first insect pests that peanut growers are faced with during the growing season are thrips. They stunt seedling peanuts which can lead to delayed maturity and direct yield loss. But the most significant thing that thrips do is to vector tomato spotted wilt virus. Traditional



Ron Weeks, Extension peanut entomologist, discusses peanut insect management during a field day in Alabama.

thrips control is applied at planting in the seed furrow. Granular insecticides with the active ingredients aldicarb or phorate are effective in reducing early season thrips damage to peanut seedlings during the first month of emergence when applied at-planting in-furrow. Hopper box seed treatment with the active ingredient acephate in the powder formulation is

also recommended for at planting thrips control. For early-to mid season plantings this treatment is usually not as effective under heavy thrips pressure and the length of control is only two to three weeks long. Foliar sprays of recommended insecticides for thrips control are not usually necessary unless poor results were obtained with the at-planting treatments due to poor up-take of the materials or unusually heavy thrips pressure. Scouting peanuts two to three weeks after emergence will tell whether these additional treatments are needed. Excessive damage to the new terminal bud (expressed as burnt leaf tip) should be avoided during the first month after emergence. Controlling thrips in peanuts has not proven to have a significant impact on reducing spotted wilt. However, research data has shown significant reductions in spotted wilt where phorate insecticide is used. This has been shown to be unrelated to direct thrips control. But in peanuts where high spotted wilt levels may be expected phorate is recommended to help manage and reduce levels (see TSWV Risk Index for details).

Another early season insect pest that has been somewhat troublesome for the last few years is the granulate cutworm.

## Tips for successful pest management

- When preparing soil before planting peanuts, check for soil insects.
- After peanuts are up, check fields at least once a week for pest and beneficial insects in order to make treatment decisions.
  - ▶ To check a field, walk diagonally across it and around at least half of the borders. Look for any abnormal plants or plant parts and, if any are found, try to determine the cause. Look for any discolored leaves and examine the undersides closely to determine if spider mites are present.
  - ▶ At ten locations in each field, examine 3 feet of row carefully. In each 3-foot section, shake the vines thoroughly and fold them back to count any foliage-feeding pests on the surface of the soil. Identify and record numbers of each kind of insect found. Carefully examine the undersides of the plants for signs of lesser cornstalk borer damage.
  - ▶ As the vines are folded back, some pods and pegs will be pulled out of the soil. Examine these for damage. It may be necessary to remove a few plants from the soil in order to thoroughly check for southern corn rootworms and lesser cornstalk borers and their damage. If you find larvae or fresh damage from either of these soil insects at three or more of the ten locations, a recommended insecticidal treatment should be made.

*"Scouting for insect pests and damage on a weekly basis is the best way to economically manage them."*

*Ron Weeks  
Auburn University*

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# Can you identify these insects & damage?

Answers are located at the bottom of this page.



1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

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Usually cutworms will start showing up about the time that peanuts are 4-6 weeks old. Dry weather, leaf shed, fields that have high incidence of seedling diseased plants or strip-tilled peanut cultivation may all be factors that increase potential for high numbers of cutworms. Control problems continue to pop up across the southeast peanut belt each year. Older pyrethroid insecticides generally have not been especially effective. The newer chemistries like Steward and Tracer have been more consistent, but still there have been fields where especially high numbers existed that these materials did not

provide satisfactory results. The night feeding caterpillars will spend most of the day under the plant/in the soil and at times will crawl up on the plant and begin feeding. I think therein is one of the problems. In especially high populations not all of these worms are feeding up on the plant foliage and are not exposed to the insecticide residues. It is virtually impossible to get enough material down through the canopy to reach the worms on the ground. Unless they feed you won't see good results with the foliar sprays.

Granular insecticides with the active ingredient chlorpyrifos have not worked well either. They control the worms only

by contact and since the worms don't feed on the granules themselves effective control is not usually accomplished. Evaluate cutworm control based upon plant damage. Even if worms are still there and damage is not being seen, treatments may not be advisable.

Through mid-season insect pests that should be watched are three-cornered alfalfa hopper (3CAH), leafhoppers and foliage feeding caterpillars as a group. In mid-season corn earworm, tobacco budworm and fall armyworms are the main species that may reach treatable levels. Weekly scouting for these insects will

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## Be aware of Three-Cornered Alfalfa Hopper damage

The three-cornered alfalfa hopper (3CAH) is certainly not a new insect pest of peanut, and it's not the most damaging, but it may be the pest whose economic impact has increased the most in recent years. There is little data on the impact of 3CAH on peanut yields, but the impact appeared to be significant in many peanut fields in 2005 in the Southeast. For the 2007 growing season, the following recommendations are being offered:

1. Scouting is the key to control. Damage seen in August and September is probably the result of feeding in June and July. Not every field requires treatment and unnecessary, automatic sprays will increase production costs and may lead to outbreaks of secondary pests,

development of insecticide resistance in other pests.

2. There are varietal differences in susceptibility to 3CAH but any variety may experience damage. Yield loss depends upon not only the number of feeding sites (girdles) on a plant, but also on the plant's reaction to that damage. Relative to other currently available varieties, Georgia Green appears to be a preferred variety, but other varieties can be heavily damaged as well.

3. Insecticides can be effective, but timing is critical. Based on limited data,

Greater than 75 days to digging	1 adult per 6 ft. of row, or, any nymphs
25-75 days to digging	1 adult or nymph per 3 feet of row
Less than 25 days to digging	Do not spray for 3CAH

the following treatment thresholds are being proposed (see table)

4. The following insecticides can be effective if used at the right time: Karate, Asana, Baythroid, Orthene 75S, Sevin, and Lannate. However, keep in mind that Asana, Orthene and Lannate, although labeled on peanuts, do not list 3CAH as a target pest. ◀

Answers to Insect Identification section at top of the page.  
1. Velvet Bean Caterpillar 2. Three-Cornered Alfalfa Hopper Damage  
3. Granulate Cutworm 4. Thrips Damage

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# Burrower bug damage to peanuts

**B**urrower bugs are first cousins to stink bugs that spend most of their lives below ground. Although burrower bugs are very common in all peanut producing states, they seldom get noticed unless severe feeding damage is found on kernels after harvest.

Burrower bugs use their needle-like mouthparts to pierce pods and feed on peanut kernels. There is

no sign of damage on the pod or even on the seed coat, so most of the time their minor feeding goes unnoticed and it is a live-and-let-live situation. There probably aren't many peanut fields in the Southeast that don't have at least a few burrower bugs feeding on the pods.



## Conditions that cause damage

So what triggers more severe damage? It's drought stress, particularly in reduced tillage systems. Our research with James Thomas at Blackville has consistently shown that tillage disrupts the life cycle of overwintering adult burrower bugs and significantly reduces injury potential.

But don't abandon strip-tillage. Even reduced tillage peanut fields that develop high burrower bug populations don't nec-

essarily sustain economic damage. For example, last year we saw one farm crawling with burrower bugs in peanuts strip-tilled into corn stubble. But since the grower had irrigation we did not treat, and the field made over 4,500 lbs. with 72 SMK, and no damaged kernels. At least in South Carolina, it takes late season drought stress for severe burrower bug injury to occur. In our experiments we have seen similar burrower bug populations in irrigated versus drought stressed plots, but less injury under irrigation. Extremely dry soil appears to increase the pod piercing activity of burrower bugs, perhaps because they need to feed on more pods to avoid drying up themselves.

Under these drought conditions we have measured significant grade and yield loss from burrower bug injury. Also, when severe injury is found on 2.5 percent of kernel weight, the load is graded as Segregation II and if it can't be cleaned below that level, the peanuts are consigned to the oil market at about \$135/ton - disaster.

## Aflatoxin

Hot dry soils late in the season are also ideal for development of aflatoxin problems. Working with Joe Dorner of the National Peanut Laboratory several years ago, we found that in one grower field, over 98 percent of the aflatoxin present was associated with burrower bug injured kernels. Burrower bugs have probably



been an unnoticed accomplice in aflatoxin contamination of peanut for many years, while the more obvious injury from lesser cornstalk borer got most of the blame.

## Preventing damage

How can burrower bug damage be prevented? Irrigation is without question the best defense. Conventional tillage also has a big impact, but reduced tillage has too many benefits every year to abandon it for what might happen in a drought year. Lorsban 15G applied at standard timing (about 50 DAP) has also provided significant burrower bug control in our tests at Blackville, but Lorsban can have negative consequences in causing severe mite and worm outbreaks.

In summary, burrower bugs are one more example of the fact that if we have severe drought stress and can't get water to the crop, there are no easy answers. ◀

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give growers the information needed to make timely treatment decisions.

Data in Alabama studies in 2005 and 2006 showed peanuts treated with aldicarb insecticide at planting had significantly reduced 3CAH damage from main stem girdling. Several of the new peanut cultivars also show reduced damage from 3CAH and some to leafhoppers. When scouting for 3CAH use the proposed treatment thresholds of the University of Georgia.

Soil insects are particularly important during pod development and scouting during this time of the season should focus on insect pests and the damage they

cause. Lesser cornstalk borers, wireworms, southern corn rootworms and burrower bugs all can cause considerable damage to peanut yields and/or quality. Knowing how specific environmental and cultural practices affect the damage each one of these pests cause is important in effectively managing these pests.

Burrower bug damage continues to be seen sporadically across the southeastern peanut belt each year. In Alabama, heavy crop residue and dry weather conditions in late season seem to be high risk factors for seeing damage from burrower bugs. In these situations scouts should focus, during pod development and maturation, on looking in the soil and under the canopy for these bugs. Although treat-

ment thresholds have not been established, if adult bugs and/or nymphs are found at an average of one per six feet of row treatments are probably warranted.

Insect pest populations vary considerably from one year to the next. Different weather conditions have a great impact on what insect populations do. Changes in cropping patterns (increase in corn or soybeans) may impact the kind of insect pest problems we have in 2007. To be successful managing insect pests and their damage in peanuts be alert, be aware and be flexible. ◀

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