

# North Carolina Pest News

Departments of Entomology and Plant Pathology



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## In This Week's Issue . . .

### CAUTION !

*The information and recommendations in this newsletter are applicable to North Carolina and may not apply in other areas.*

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See current and archived issues of the *North Carolina Pest News* on the Internet at: [http://ipm.ncsu.edu/current\\_ipm/pest\\_news.html](http://ipm.ncsu.edu/current_ipm/pest_news.html)

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## ANNOUNCEMENTS AND GENERAL INFORMATION

### Welcome to the 2013 *North Carolina Pest News*

Welcome to the first issue of *North Carolina Pest News* for 2013. *North Carolina Pest News* is a newsletter published in electronic form by the Departments of Entomology and Plant Pathology at North Carolina State University, and contains up-to-date information on the status of disease and insect pests in North Carolina from Extension specialists in the two departments. Steve Toth, Extension Entomologist and Integrated Pest Management Coordinator, is the editor of the newsletter.

From now until the middle of September, new issues of *North Carolina Pest News* will be available every Monday morning at 8:00 a.m. via electronic mail to county Extension agents, University specialists, and others. By Monday afternoon, the newsletter will be available on the Internet at [http://ipm.ncsu.edu/current\\_ipm/pest\\_news.html](http://ipm.ncsu.edu/current_ipm/pest_news.html).

We hope that *North Carolina Pest News* will meet your individual needs for information on the occurrence of diseases and insect pests in North Carolina. Please direct any suggestions or comments to Steve Toth ([steve\\_toth@ncsu.edu](mailto:steve_toth@ncsu.edu)).

## FIELD AND FORAGE CROPS

From: Jack Bacheler, Extension Entomologist

### Cotton Insects and Weather Patterns

If upcoming cotton insect outbreaks are difficult to predict following cold or warm winters, this past winter's average conditions likely reveal even less insight into what's in store for us in 2013.

**Questionable Insect Predictions:** One might think that for a southeastern entomologist with 30-plus years of observing cotton insects and their damage following every kind of North Carolina winter imaginable, this experience would translate into keen insights into predicting the upcoming year's insect problems. *Not!* As producers can attest, each growing season brings its share of insect surprises – some good; some not – but most difficult to predict prior to planting and even into the growing season.

**Multi-generation Pests:** Most of us entomologists are often far more adept in analyzing insect pest problems after the fact than in predicting problems in a way that might be helpful – that is, accurately and before they occur. Additionally, many of us are guilty of pointing out our weather and insect prediction victories but less willing to admit our more common 50% success rate. Another complicating factor in predicting upcoming insect levels is that most of our southeastern insect pests undergo a number of generations per year and their populations can either build up rapidly or decline quickly following an impressive or puny spring start. Perhaps our cold 2013 March has delayed the development of both pest insects and their hosts; however weather patterns during the late April to July time period typically exert a far greater influence on potential mid- and late-season insect pest outbreaks on field crops than the previous winter or early spring. One remarkable example of the fickle nature of insect outbreak predictions based on the previous winter stands out. Our extremely cold winter of 1976-1977 was almost unprecedented in North Carolina recent history, with significant areas of our major sounds

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freezing, resulting in massive fish kills. Although some species of insects were undoubtedly reduced to very low levels (for example, the boll weevil) that winter, the subsequent extremely hot and dry spring and summer weather resulted in massive caterpillar outbreaks, both local (bollworms and budworms) and migratory (soybean looper and beet and fall armyworm) species. Insect pests of field crops are typically very adaptable, most undergoing multiple generations and having a high reproduction potential, so that their status can change dramatically over the course of a single growing season. What we thought was shaping up to be a gentle year for most insects in 1977 turned into a summer of alarming insect levels and enormous crop losses.



**Beet armyworms on cotton foliage. Image by Jack Bachelier.**

**Predictions Difficult:** All of the factors that influence the severity of our upcoming 2013 “pest year” – such as pest survival during the winter, the abundance and quality of nearby insect crop and weed hosts during the spring and early summer months, and the development of the crop itself – are related to weather patterns which are often difficult to predict on a farm or county level basis even just a few days in advance. Therefore predicting weather patterns that might impact insect levels weeks or months in advance are often of limited value, especially in the Southeast, with the exception of some weather-based insect development models that continuously update various weather parameters. Because all of our major cotton insect pests – thrips, bollworms, stink bugs, cotton aphids, spider mites, and others – undergo a number of generations on other crops and wild hosts before moving into cotton, making early predictions several generations down the road difficult and unreliable.

**Manage Locally:** Weather patterns will determine the timing and intensity of our potential insect outbreaks in 2013. However, apart from the general impact of El Niño and La Niña on weather and thus insect levels, predictions of weather events and insect outbreaks, especially at a local level, are difficult. Remember that producer five miles down the road who produced two bales to your one? Although meteorologists have difficulty in predicting general weather patterns more than about a week or two in advance, on the plus side, sound insect and plant monitoring and well-timed sprays can play a major role in making the best of what nature has in store for us in 2013.

## 2013 Cotton Pest Outlook

Although largely determined by weather patterns, our predictive capabilities for insect outbreaks, like weather, are poor more than a week or two in advance, however, a few observations may be in order as we approach planting.

**Thrips:** Thrips have consistently caused major headaches for North Carolina's and Virginia's cotton producers, particularly in early planted cotton. The North Carolina/Virginia region leads the Southeast and other parts of the cotton belt in high thrips levels and potential damage. Our slow seedling grow-off conditions (extending the period of seedling susceptibility to thrips damage) and high amount of surrounding thrips host vegetation that serve to funnel thrips adults into relatively small cotton fields often result in a rough start for cotton seedlings. Even though hot dry spring weather may result in quicker grow-off conditions and a narrower window of thrips vulnerability for cotton seedlings, the rapid drying of alternative thrips hosts (weed hosts, wheat, etc.) helps create high levels of migrating adult thrips. Dry soil may also limit the uptake of seed treatment insecticides and at-planting foliar insecticides. Unfortunately, thrips headaches are more often the rule than the exception for most North Carolina cotton producers. Following the seed treatments Aeris/Poncho/VOTiVO, Avicta Complete or Acceleron, unless cotton is scouted religiously every 5 days, a foliar spray targeted at the first true leaf stage or at 3 weeks after planting (whichever comes first) is often the rule here in the Upper Southeast. However, if cotton is planted after about May 20, the typically faster grow-off conditions often mean that a seed treatment alone may control thrips.



**Seed treatment; good cotyledon growth followed by loss of residual activity. Image by Dan Mott.**

**Plant Bugs:** At our latitude and throughout most of the Southeast, plant bug damage is usually surprisingly low during the pre-bloom period and beyond. However, plant bug levels have increased in the past few years. Although we had averaged treating 6.3% of our consultants' clients' acreage for plant bugs from 2004 until 2007, an average of 16.3% was treated in 2011-2012. Is this a trend? As a general rule, a warm winter with adequate moisture will favor the early development of weeds and other host vegetation and increase plant bug populations, resulting in higher levels moving into cotton when these

hosts begin to dry down. In North Carolina, whether generally favored by more generous early season rainfall or additional suitable hosts, plant bug levels are typically higher in our eastern counties.

**Stink Bugs:** The potential for stink bug damage appears to have a strong correlation with moisture throughout the bloom period, with dry years often resulting in low stink bug damage to the less attractive and less susceptible cotton plants. However, late sub-freezing weather following a warm winter when brown and green stink bugs are active, though not common, can have a devastating impact on their levels and potential damage. This was the case in 2007 when a hard Easter Freeze reduced stink bugs to sub-economic levels for the entire growing season in most areas of the state. Dry weather also negatively influences early wild and cultivated stink bug hosts resulting in fewer stink bugs and damage. As a general rule, higher moisture levels are correlated with higher stink bug levels and boll damage, but also higher cotton yields in our dryland region.



Severe stink bug damage to young boll. Image by Jack Bacheler.

**Corn earworm:** Successful corn earworm (cotton bollworm) moth emergence from the soil, primarily in May here, is influenced both by the number and quality of bollworms going into the soil in the fall and their overwintering pupal mortality which in turn is influenced winter weather and its impact on pupal cell integrity in the ground. In general, wetter winters result in higher bollworm pupal mortality. However, bollworms undergo two generations, first on whorl stage and then ear stage corn, before invading cotton and most other agronomic crops. The corn earworm generation that feeds on field corn ears can account for significant buildups in the subsequent generation. On the practical side, bollworm damage to cotton has been low since the introduction of 2-gene *Bt* cotton in 2006. Our highest damage levels often result from a combination of one or more of the following factors: late cotton planting, wet conditions favoring rank cotton growth, a disruptive foliar spray(s) for stink bugs, and a large late bollworm moth flight.

**Other Caterpillars:** In recent years, as a result of the introduction of BGII and WideStrike cotton, our producers experienced only minimal damage from **other caterpillars**, such as fall and beet armyworms, European corn borers, and soybean loopers. Unlike conventional and Bollgard cotton, Bollgard II and WideStrike varieties show high resistance to both armyworm species and loopers. The early appearance

and high abundance of migratory species such as loopers and beet and fall armyworms at our latitude is very much favored by hot dry spring and summer conditions.

From: Steve Koenning, Extension Plant Pathology, and Jim Dunphy, Extension Specialist, Crop Science

### **Current Status of Soybean Rust in North America – April 13, 2012**

Soybean rust was detected on kudzu in Miller County, Georgia on April 5th. On April 4th the disease was found on kudzu in Selma, Alabama (Dallas Co.); the furthest north soybean rust has ever been found overwintering successfully in the U.S. It appears warm winter temperatures have allowed soybean rust to survive the winter on kudzu along the Gulf Coast and in a few urban-areas further inland.

The disease has now been found in eight parishes in Louisiana, five counties in Alabama, four counties in Georgia and three counties in Florida. All the reports have been on kudzu with the exception of one case of soybean rust detected on volunteer soybeans in Louisiana. Relatively mild winter weather has allowed for some survival in the continental U.S. Sentinel plots have been planted in Mississippi, with no rust detected at this time.

### **Potential for Soybean Rust in North Carolina in 2013**

At this time there is no risk from soybean rust in North Carolina. With rust infections on kudzu in much of the Gulf Coast this spring the opportunity for spread is greater than in past years. Still conditions during the growing season in North Carolina as well as the rest of the Southeast, air movement patterns, and lastly paths of tropical storms will be the major factors as to whether soybean rust will require management. We will continue to operate sentinel plots in 2013 though the number has been reduced to about 15. Mobile surveys will be conducted as warranted and as usual we will track the progress of soybean rust in other states.

### **Resources for Soybean Rust in 2013**

Some sources for more detailed information on Asiatic soybean rust are listed below:

USDA soybean rust web site: <http://www.sbrusa.net/>

*North Carolina Agricultural Chemical Manual*: <http://ipm.ncsu.edu/agchem/agchem.html>

Fungicide Efficacy for Control of Foliar Soybean Diseases – April 2013:

[http://ipm.ncsu.edu/current\\_ipm/13PestNews/13News1/Soybean\\_Fungicide\\_efficacy\\_table\\_2013.pdf](http://ipm.ncsu.edu/current_ipm/13PestNews/13News1/Soybean_Fungicide_efficacy_table_2013.pdf)

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## ORNAMENTALS AND TURF

From: Steve Frank, Extension Entomologist

### Ambrosia Beetles

Ambrosia beetle activity has been sporadic this year. Remember those two 70-degree days in January? I had reports of ambrosia beetle attacks on those two days. Since then I have had a few other reports of beetles in traps or occasional attacks. At our research nursery, Raleigh, however, we hadn't captured any until this week. Then Tuesday the traps filled up and two trees were hit. It seems ambrosia beetles are finally out in Raleigh and we had similar reports from the mountains and foothills.

Ambrosia beetle management starts with reducing plant stress. In particular we have found that trees with too much water are preferentially attacked. It is easy to overwater this time of year when transpiration and evaporation are low. The next step is preventive applications of permethrin. Apply permethrin to tree trunks and try to avoid spraying the canopy. Our research shows that spraying tree canopies results in spider mite outbreaks later in the year (see the paper here: <http://ecoipm.files.wordpress.com/2012/02/franksadof2011reprint.pdf>).



**'Frass toothpick' formed as ambrosia beetles push out frass as they bore into trees. These are characteristic of ambrosia beetle attacks but are easily washed off by rain and irrigation. Photo: S. D. Frank.**

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## Cankerworms Hatching

Cankerworms were very abundant last spring and we predict the same this year. Cankerworms eggs were laid over the winter and just started hatching in Raleigh last week. You can see the tiny caterpillars if you shake branches or just watch for them dangling below trees. They feed on many hardwood tree species but willow oaks seem to be damaged most heavily. We have written a lot on the biology and management of these critters. See a recent article in *American Nurseryman* ([http://ecoipm.files.wordpress.com/2013/03/an\\_feb13\\_planthealth.pdf](http://ecoipm.files.wordpress.com/2013/03/an_feb13_planthealth.pdf)). You can find information and links to other articles on our dedicated Cankerworm Project webpage (<http://ecoipm.com/research/cankerworm-project-home/cankerworm-project/>). The important thing to remember is that they only feed for 4 to 6 weeks and only have one generation per year. By the time they get big and start defoliating trees they are about to quit and pupate in the soil until fall. The best management tactic is tree banding in the fall when adults are active. This time of year there is not much to do especially for large trees.



Young cankerworms eating young willow oak leaves. Photo: S. D. Frank.

## Eastern Tent Caterpillars

Eastern tent caterpillars hatched in the past couple weeks and have already established big nests. The easiest way to deal with tent caterpillars is to prune out the nests. Eastern tent caterpillars make nests in the crotch of trees. (Fall webworms make nests at the end of branches.) So if you can't remove the nest you can poke it with a pole pruner. This destroys the nest so many caterpillars fall to the ground and others get eaten by birds. Opening the nest also lets parasitoids in to kill the caterpillars. For severe infestations there are some insecticide options. Products containing *Bacillus thuringiensis* (*Bt*) are effective against caterpillars. Other active ingredients labeled for caterpillar control include spinosad, *Beauveria bassiana*, acetamiprid, acephate, azadirachtin, and bifenthrin. Keep in mind that these caterpillars spend most of their time in a water-proof nest so contacting them is difficult. This limits the efficacy of many insecticide applications.



Eastern tent caterpillar nest in flowering crabapple (?). Photo: S. D. Frank.

### Extension Resources Online

We have many extension resources such as factsheets, articles, pest news, and presentations consolidated as links on my website (<http://ecoipm.com>). In addition, you can visit the site to read my blog or twitter feeds. You can also sign up to follow my pest alert Twitter feed @OrnaPests and my general ecology and IPM twitter feed @ecoIPM via Twitter or by clicking the ‘Follow’ buttons on my website. @Ornapests provides short timely alerts when new pests become active in the field accompanied by pictures and links to management information. I recently posted “pdf” files of about a dozen articles I have written for industry magazines and a new free book on the management of tree pests in nurseries and landscapes (<http://ecoipm.com/extension/extension-resources/>).

From: Kelly Ivors, Extension Plant Pathologist

### North Carolina Pest Alert for Spring 2013: Impatiens Downy Mildew

This information below with embedded links can be found at:  
[http://go.ncsu.edu/impatiens\\_downy\\_mildew](http://go.ncsu.edu/impatiens_downy_mildew)

Impatiens downy mildew was recently identified in a Virginia greenhouse in mid-January 2013 on impatiens cuttings taken from plants originally obtained from a North Carolina greenhouse in December 2012. Based on information from prior years, the 2013 impatiens downy mildew situation in our area is predicted to remain problematic. However, what time of year it shows up in the landscape and the level of downy mildew severity will depend on local weather conditions and how the ‘winds blow’.

For a quick summary of the history, spread, symptoms and risks, check out [Everything You Need To Know About Impatiens Downy Mildew](#).

Downy mildew of impatiens is caused by the fungus-like organism *Plasmopara obducens*. The group of organisms that cause downy mildew diseases are more closely related to the well-known plant pathogens *Phytophthora* and *Pythium* than they are to true fungi. This is an important distinction because many of the traditional fungicides used to control fungal diseases of plants do not have efficacy against the downy mildews. All types of propagated *Impatiens walleriana*, including double impatiens and mini-impatiens, and any *I. walleriana* interspecific hybrids, such as Fusion® impatiens, are susceptible to downy mildew; however, all New Guinea impatiens (*I. hawkeri*) and interspecific hybrids such as SunPatiens® are immune to impatiens downy mildew. No other bedding plants are known hosts of this particular downy mildew, although there are a few other downy mildew species that specifically attack other floriculture plants like coleus and basil.

Given the high plant mortality associated with epidemics of impatiens downy mildew, everyone growing impatiens should be treating with fungicides preventatively, because once it starts it is very difficult, if not impossible, to control. However, fungicide treatments are not recommended for plants in the landscape; instead, all infected impatiens should be pulled from the landscape and destroyed. Fungicides are not always 100% effective at eliminating the disease. Allowing infected plants to remain in the landscape may allow the pathogen to overwinter as resting structures (called oospores), which can start a new epidemic later in the year or in following years if impatiens are replanted in the area. New Guinea impatiens, coleus, begonia, or other available bedding plants are safe to reset in the affected area. A nice list of planting alternatives to impatiens can be found [here](#).

A number of plant pathologists have been researching this disease to provide science-based information to greenhouse growers, plant retailers, landscapers and home gardeners. A list of resources can be found below:

**General information:**

[Illustrations of symptoms in production and landscape](#)

[Impatiens downy mildew Fact Sheet](#)

[Impatiens downy mildew: a review](#)

**Grower information:**

[Impatiens Downy Mildew Grower Guidelines](#)

[Preventive and responsive chemical control programs](#)

[A list of fungicides labeled for downy mildew control](#)

[Assessing Risk](#)

**Landscaper/Gardener information:**

[FAQ's for landscapers](#)

[Impatiens Downy Mildew in the Landscape](#)

[A Practical Approach for Landscaper Gardeners](#)

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## RESIDENCES, STRUCTURES AND COMMUNITIES

From: Mike Waldvogel, Extension Entomology

### Warmer Weather Will Bring on Some Bugs

Our warmer temperatures over the weekend and continuing this week are going to increase activity by kudzu bugs and brown marmorated stink bugs. The stink bugs have a broad host range and are often found on Paulownia ("empress tree"), Ailanthus ("tree of heaven"), and crabapple among others, but at this point in the year (particularly in western North Carolina) those host plants have little foliage and cooler weather has kept the bug activity down. And so, a lot of this current activity is simply a response to the warmer temperature and you'll see the insects on non-host sites, such as house siding, cars, etc. Kudzu bugs will be aggregating on almost anything and so you will see them on wisteria and other (even if there isn't much foliage), houses, early-planted beans in people's gardens, etc. But even on plants with foliage the insects will simply be hanging out rather than feeding.

I'm talking strictly from a residential (rather than agricultural/horticultural) perspective about these insects. Dominic Reising, Hannah Burrack and Mark Abney will be providing information about kudzu bugs (and stink bugs, depending on the crops of concern) in the ensuing months and you can watch for their updates through Twitter postings or visit <http://www.nccrops.com>.

Homeowners may want to spray (or have someone spray) the exterior of their houses. We don't have kudzu bugs listed under residential pests in the *North Carolina Agricultural Chemicals Manual*, but they can use any of the common products containing chemicals such as bifenthrin which are used for pests such as millipedes, boxelder bugs, etc. However, also remind people not to have high expectations of success. There's a big difference between "killing" individual bugs and "controlling" a population when these bugs are essentially "moving targets" in terms of where and when they'll show up. Remind people that this situation is not identical to the fall when these insects were looking to get into their houses in order to survive the winter. Now, their intention is to head to the great outdoors and look for food and to lay eggs. So, spraying aggregations (e.g., clusters on a wisteria plant) will kill a bunch but it's not going to make them go away. Remind people also that if they're going to spray trees and shrubs in their yards (rather than spraying the exterior of their houses), they need to make sure they're using products labeled for use on those plants. If they decide to spray the exterior of their houses, remind them about safe application of pesticides particularly if they are spraying up over their heads. The laws of gravity apply as much to chemicals as to Newton's apple. The droplets fall back down onto them as well as drift with the wind and so it's important that before spraying outdoors, you look to cover or remove items such as children's toys, pet food/water bowls, etc. and watch out for any spraying near decorative fish ponds and hard or impervious surfaces such as sidewalks, pavement, etc. where chemical washed off the house by rain can easily end up in storm sewers and end up contaminating bodies of water.

We have information for residential settings at: <http://insects.ncsu.edu/Urban/kudzubug.htm>

### Wasp Activity Around Buildings

In case your local citizens aren't satisfied with just complaining about kudzu bugs, they'll likely call you about their home (or business) being invaded by wasps. Overwintering paper wasps ("Polistes") queens

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are starting to become active. Many of them have spent the winter in wall voids, attics, and crawlspaces. As a result, some of the wasps stray indoors accidentally. People will check their attics and not find a nest – that's because there isn't one there, nor is there one in their walls, crawlspace, etc. Because these are queens (rather than workers defending a nest), these wayward wasps are not aggressive. However, if you grab one you'll find out quickly that it can sting. However, they are an easy target for a rolled-up newspaper, which is far safer than unloading a can of insecticide spray on them.

Outdoors, people will often see hundreds of the wasps hovering near chimneys and other vertical objects. The wasps are busy scoping out perspective nesting sites which may be on roof overhangs, gutters, underneath porches and decks, etc. In most cases, they are too high up to make any sensible (and safe) attempt at chemical or mechanical control. The best approach is just to watch for signs of initial nest building (which will still take a few weeks) and then knock it down with a broom or with a blast of water from a hose. At that point, there are few (if any) workers and so the probability of getting stung is minimal. Later into the summer, the nest will contain a few hundred workers and at that point, you can get stung if you're too close to the nest. People who are very concerned about getting stung can spray any nest with one of those aerosol wasp and hornet sprays that propels the chemical about 15 to 20 feet.

We have information about the wasps at: <http://insects.ncsu.edu/Urban/paperwasp.htm>

### Periodical Cicadas

We are starting to get reports of cicadas emerging. At this point, you may see mostly nymphs (immatures) emerging from the soil and onto trees and other vertical objects in preparation for molting to winged adults before heading up into the tree canopies (which may be sparse on vegetation right now but will pick up with the warmer temperatures this week). We would like to track the emergence pattern across the state. If you see any cicadas or if people bring them in or call about them, please e-mail: Clyde Sorenson ([clyde\\_sorenson@ncsu.edu](mailto:clyde_sorenson@ncsu.edu)).

*Recommendations for the use of chemicals are included in this publication as a convenience to the reader. The use of brand names and any mention or listing of commercial products or services in this publication does not imply endorsement by North Carolina State University, North Carolina A&T State University or North Carolina Cooperative Extension nor discrimination against similar products or services not mentioned. Individuals who use chemicals are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Be sure to obtain current information about usage regulations and examine a current product label before applying any chemical. For assistance, contact an agent of North Carolina Cooperative Extension.*