



# KENTUCKY PEST NEWS

ENTOMOLOGY • PLANT PATHOLOGY • WEED SCIENCE

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## ANNOUNCEMENTS

### **30th ANNUAL UK PEST CONTROL SHORT COURSE- October 3-5, 2000 in Lexington**

The 2000 University of Kentucky Pest Control Short Course will energize you with information and ideas to move forward with confidence.

This year's 30th Anniversary conference is packed with useful topics for owners, managers, and technicians alike - a hard-hitting business session on legal, insurance and regulatory issues of termite baiting; surviving negligence/bodily injury claims marketing strategies for small companies; IPM in schools; new insights on rodent trapping, emerging construction challenges; practical termite research - even a half-day workshop on managing 18 bothersome pests seldom mentioned at other conferences around the country, such as silverfish, psocids, snakes and ladybugs!

See the full program on the Ky Pesticide Applicator Training Web Site at -  
[www.uky.edu/Agriculture/PAT/welcome.htm](http://www.uky.edu/Agriculture/PAT/welcome.htm)

Call Darlene Thorpe (859) 257-5955 for more information.

## CORN

### **EARWORM CONTROL IN LATE SEASON SWEET CORN**

**by Ric Bessin**

Now that field corn is drying down in much of the state, corn earworm pressure is intense for late maturing sweet corn. The relatively small sweet corn acreage acts almost like a magnet to draw in the moths with the scent of fresh corn silks. Management and control of corn earworm is much more difficult at this time. Some important factors to consider to improve control of this pest are timing of insecticide applications, getting proper coverage of the plant, and selection of the appropriate insecticide.

Timing is key to getting proper control of this insect. The corn earworm moth lays its eggs on fresh silks. So during the silking period, before the silks dry, corn earworm needs to be managed. Generally, producers spray when the first silks appear, some wait until 10% silking for the first spray. Then sprays are spaced at 3 to 5 day intervals depending on the level of insect pressure and temperature. Temperature is important as the silks grow faster under high temperature. As silks continue to grow after an insecticide application, untreated silk is available to the earworm larvae. When temperatures are over 90F, I recommend that spray intervals be shortened by one day. The other



factor is insect pressure. Late in the season, there are many times the numbers of moths that attacking corn than what was observed in the early summer. Pheromone traps can be used to monitor moth activity and help make decisions about spray intervals. Guidelines can be found in **IPM-10, Sweet Corn IPM**.

Another important consideration is spray coverage. Generally, ground applications will be superior to aerial applications. The key is to get thorough coverage of the middle third of the plant. This is the ear zone where protection is needed. Ground equipment should be configured with drop nozzles to target this area for coverage.

Insecticide selection can also be important and it may affect the length of spray intervals. Generally, pyrethroid insecticides provide excellent control of corn earworm larvae in sweet corn. However, under high temperature extremes, pyrethroids are not as effective as they are at lower temperatures. Under these conditions, other insecticides may be preferred. One alternative used by some producers is Lannate. Keep in mind that Lannate has a very short period of residual activity, less than 24 hours. Shorter spray intervals will be required with this product.

## **SOYBEAN**

### **SUDDEN DEATH SYNDROME UPDATE by Don Hershman**

The most serious outbreak of soybean sudden death syndrome (SDS) since 1985 is now in progress throughout west and central Kentucky. The most significant occurrence of the disease is in Green River Area, but many other counties outside this area are also showing varying levels of SDS. The most extensive outbreaks are occurring in early-planted fields. Planting conditions were exceptional this spring and many producers jumped into planting soybean early once corn planting was completed. The fact that SDS is widespread and severe in early-planted soybean is not a surprise. In 1990, we published the results of research trials on the effect of planting date on SDS symptom expression. We found that early planting predisposed soybean to SDS infections, even though SDS can also occur in later planting dates. That work and other research results since that time have confirmed that early season soil conditions which tend to exist when soybean are planted early also support infection by the soil fungus that causes SDS. Later planting dates usually coincide with warmer, dryer soil conditions which are less favorable to the SDS causal fungus. Remember that

SDS is primarily a root rot disease. The foliar symptoms are expressed only after the fungus in the diseased roots produces plant toxins which are then translocated to the foliage, and cause damage to leaf tissue.

The main questions that are being asked by farmers have to do with possible yield impact and how to avoid this situation in future crops.

Regarding the effect of SDS on crop yields, the current situation is a "mixed bag". It is known that the timing of SDS symptom expression is a critical factor which determines direct yield loss due to SDS. For example, fully developed, green pods will not usually drop off diseased plants, even if SDS symptoms are extensive. However, pods commonly abort when SDS is severe before mid-pod fill. Based on my observations, as well as the results of an informal survey of County Agricultural Extension agents, most affected fields appear to have been far enough along when SDS hit hard to escape serious yield loss; I would anticipate losses in the 5-10% range. However, a small percentage of diseased fields will take a much more significant yield hit (30-50%). Most of the severely impacted fields are planted to later maturing varieties which became diseased well before mid-pod.

One wild card in the SDS yield loss equation is indirect yield loss due to pod shattering. Plants killed prematurely due to SDS may have excellent yield, but the fact is they will remain in the field, ready to harvest, for an extended period as unaffected plants mature and dry down normally. If the time differential is significant, then harvest losses due to shattering could be substantial. The key is to target SDS-affected fields for harvest as soon as they are ready.

The best way to avoid SDS in the future is to avoid early planting, plant early to mid-season varieties, and plant varieties in SDS-prone fields which are not highly susceptible to SDS. True resistance to SDS is not yet available. However, avoiding planting highly susceptible varieties will usually help by delaying disease onset until the later stages of crop development as discussed above.

### **TIME TO WATCH FOR SOYBEAN PODWORM IN SOYBEANS by Doug Johnson**

Often at this time of year we tend to get a bit complacent in the pest management department. Corn is pretty much made and, if the weather is good,

soybeans are coming on strong. Yet this time of year can bring on one of the most important and destructive pests of soybean—the soybean podworm.

Soybean podworm, otherwise known as the corn earworm, is not a common problem and that is part of the problem. Producers often do not look for the pest because they have not had problems with it in recent years. Additionally, because this pest feeds almost exclusively on pods, one has to be in the field looking at the pod set to detect a problem. Just looking at the foliage from a distance will not tell you anything.

Where to look. Because moths are moving out of maturing corn fields start looking in soybean fields near maturing corn fields. Podworm moths can fly a long way, so it will not be just the close fields that have trouble, but those are good places to begin. Additionally, fields that do not have an overlapping canopy are often the most heavy infested. The lack of canopy might be due to late planting, lack of rain, or use of short varieties in wide rows. It doesn't really matter what causes the open canopy, just that it is open.

You can use pheromone traps to tell you if podworm moths are in the area and when they are active. The "Texas Cone Trap" (<http://www.uky.edu/Agriculture/Entomology/entfacts/misc/ef010.htm>) is one of the better designs but many traps will catch this moth. The mere presence of moths does not mean a pest population will develop. It will however give you a "heads up". You must scout the field to determine if sufficient numbers of podworms are present to warrant control; and make sure you identify them correctly. See ENTFACT 112 at: <http://www.uky.edu/Agriculture/Entomology/entfacts/fldcrops/ef112.htm>

Adults are buff to light green moths with a wingspan at rest of about 1/2". Eggs are white to pink and 1/30" wide and laid singly. Larvae (worms) are very small to 1 1/2" in length when full grown. They are usually tan to pale green with several dark stripes down the back. However, color may be quite variable, with some individuals almost black. If you cannot identify these insects take a specimen to your county extension office for help.

Controls are warranted if on average your sampling find two (2) podworm per row-foot. Take a representative sample of the field. You should take a four row-foot sample at one location for about every 7 acres of field size. Under no account should you take less than three samples. You may find that only a

portion of the field is infested.

More detailed scouting and control recommendations can be found on the IPM and Entomology webpages at:

<http://www.uky.edu/Agriculture/IPM/ipm.htm>

and

<http://www.uky.edu/Agriculture/Entomology/enthp.htm> as always all of our publications are available through KY County Extension offices.

## PESTS OF HUMANS

### TICK NUISANCE INCREASES AND SMALLER STAGES BECOME ACTIVE

By Mike Potter and Lee Townsend

Adult lone star ticks were active and abundant earlier this summer. Now, the small nymphal and larval stages are feeding and will remain active into September.

Ticks are sometimes a problem in yards, especially when pets are kept outdoors. Ticks also can be a serious problem in parks, camps, picnic sites, and other recreational areas. Tick populations can be reduced in these areas by mowing and trimming lawns and other vegetation, thus creating a less favorable habitat for ticks and their wild hosts. Wood, brush piles, and other accumulated debris should also be removed.

Insecticide sprays are most effective when directed into areas where ticks and their animal hosts are likely to frequent. Pay particular attention to borders and fences between wooded or brushy areas and the lawn, around ornamental plantings, beside foot paths, and the dog house. Products containing carbaryl (Sevin), chlorpyrifos (Dursban), and diazinon are effective, as are permethrin, cyfluthrin (Tempo), and other synthetic pyrethroid insecticides. A single application during late-April or May is often all that is required, although treatment may need to be repeated in June.

#### Avoiding Tick Bites

The best way to avoid tick bites is to follow these precautions:

1. Avoid walking through uncut fields, brush, and other overgrown areas. Walk in the center of mowed trails to avoid brushing up against vegetation.
2. When hiking or camping in tick-infested areas, wear light-colored clothing and long pants tucked into boots or socks. Ticks will be easier to spot, and it

will be more difficult for them to attach to your skin.

3. Consider applying insect (tick) repellent to shoes, cuffs, socks, and pant legs. Products containing diethyl toluamide (DEET) or permethrin are most effective, but be sure to read and follow directions for use on the container.

4. Regularly inspect family and pets carefully after being in tick-infested areas. Promptly remove any ticks. Showering or bathing effectively removes ticks which have not yet attached.

Spray the ground and vegetation up to a height of about three feet, thoroughly wetting the surfaces with the insecticide. Apply it according to label instructions. Children and pets should be kept off treated areas until the vegetation is completely dry. Treating the entire lawn is of little benefit since ticks avoid direct sunlight and normally will not infest areas which are well maintained.

## **VEGETABLES**

### **FUNGICIDES ARE ESPECIALLY IMPORTANT TO FALL VEGETABLE PRODUCTION**

**By William Nesmith**

It is very important that Kentucky's commercial vegetable producers sustain a sound fungicide program with fall vegetables. This season has been favorable for diseases, so most common diseases have been building all year and are now positioned to strike quickly at very destructive levels. Disease potentials are much higher in the fall season than at other times of the year. The rainy and foggy weather greatly increases the disease potential and the need for timely fungicide applications. Growers need to prepare to deal with powdery mildew, downy mildew, fungal leaf and fruit spots/blights, rusts, anthracnose, and bacterial leaf spots/blights.

See current ID-36, *2000-01 Vegetable Production Guide for Commercial Growers* for the fungicide options available in Kentucky. Nova for powdery mildew control in cucurbits is the only major addition since publishing. Please, read the chapter on fungicide applications.

Timing of the applications so they are ahead of the pathogen is very important. For most fungicides, the applications must be made before the disease begins. Why? Because the materials stop the pathogens by preventing germination and subsequent infections—not by eradication of the pathogen after it

is inside the plant. Some of the newer fungicides, however, do have curative or eradicant action, i.e., they can stop further growth and development of the pathogen or even kill pathogens already infecting the plant. However, even when they have curative action, using them as curatives may not be wise. In general, the curative-type chemicals have narrow modes of action, which places them at high risk of the targeted fungi developing resistance to them. I strongly recommend alternating products with different modes of action in each field to help reduce the risk of fungicide resistance.

Coverage is a critical issue with fungicides. Applications of protective fungicides must be done properly to be effective under strong disease pressure. The size of the pathogen needs to be considered - it is usually microscopic. This means that the control agent must be in all the microscopic places. Consequently, tiny droplets applied uniformly over all the foliage are critical to control with protectant fungicides. The closer you come to achieving this goal the better the control will be with systemic materials, too.

Ground operated spray equipment should be equipped with appropriate numbers of drops and nozzles, and set to deliver 75 to 150 gallons per acre at 100 to 400 psi to push out the "dead air" around the plant surface and replace it with "fungicide-contaminated mist". Most pumps in use on Kentucky's tobacco farms fall well short of this standard. For protective fungicide applications, piston pumps and diaphragm pumps give the best capability although some roller pumps will give sufficient capability. Lower volumes and lower pressures are not usually as effective. Failure to use adequate drop nozzles and hollow-coned nozzles is a frequent cause of fungicide-ineffectiveness in Kentucky. Using drop nozzles in vine crops, rather than just a broadcast boom, will greatly improve the effectiveness of fungicides. Getting the fungicide down into the canopy to protect the leaf petioles, vines, and developing fruit is especially important with vine crops.

## **LAWN AND TURF**

### **NUISANCE YELLOWJACKETS**

**By Mike Potter**

Yellowjackets are often considered the most dangerous stinging insects in the United States. They tend to be unpredictable and usually will sting if the nest is disturbed. During late summer and fall, yellowjacket colonies are nearing maturity and huge

numbers of workers are out foraging for food for the developing queens. With insect prey (their usual diet) becoming scarce, yellowjackets scavenge for other sources of nutrition, especially sweets, e.g., fruits, ice cream, beer and soft drinks. The persistent foraging of yellowjackets at picnics and other outdoor activities produces many calls from homeowners and businesses wanting to know what can be done to alleviate the problem.

#### **Options include:**

**1. Sanitation** - The best way to reduce the threat of foraging yellowjackets is to minimize attractive food sources. People eating outdoors should keep food and beverages covered until ready to be eaten. Spills and leftovers should be cleaned up promptly. Trash cans should be equipped with tight-fitting (preferably self-closing) lids. Similar sanitation recommendations should be made to commercial establishments, including ice cream parlors, outdoor cafes, and produce stands. Whenever possible, trash cans and dumpsters should be located away from serving tables, doors, and other high-traffic areas. Trash cans should be equipped with a plastic liner and emptied and cleaned frequently. Apples, pears, and other decomposing fruits falling from trees should be promptly raked up and discarded or buried.

Maintaining high levels of sanitation throughout the summer will make areas less attractive to yellow jackets later in the fall. This strategy is especially useful for parks and recreation areas.

**2. Avoidance** - Combined with sanitation, this is the best advice in most situations. Yellowjackets foraging away from their nests are seldom aggressive and usually will not sting unless provoked. People should resist the temptation to "swat" at the wasps, and instead should carefully move away. Be especially careful when drinking from beverage cans which may contain foraging individuals. When yellowjackets are abundant, keep your thumb over the opening of the can between sips.

Avoidance may also be the best advice if a yellowjacket or hornet nest is located in a tree or other out-of-the-way location. Throughout Kentucky and much of the United States, yellowjacket colonies die off on their own in late autumn with the coming of cold weather. Abandoned nests are not reused and soon disintegrate.

**3. Repellents** - A dilute solution of ammonia and water (approximately 6 oz of ammonia per gallon of

water) sprayed in and around trash cans and sponged onto outdoor tables and food preparation surfaces may help to repel yellowjackets from these areas. Use household ammonia, not Chlorox (bleach).

**4. Traps** - Although only of marginal benefit, traps are available which catch impressive numbers of yellowjackets when properly baited and positioned (generally around the outer perimeter of the area you wish to protect). Business establishments such as outdoor cafes may find such traps worthwhile when used in conjunction with sanitation and other approaches. Cat food (canned), tuna, liverwurst, jelly, fruit juice, and other sweets are effective attractants. Yellowjacket traps are sold in some hardware and farm supply stores.

**5. Insecticides** - Elimination of yellowjackets is best accomplished by locating and destroying the nests. However, with foraging yellowjackets this is often impractical since the nest (or nests) may be located several hundred yards away. If the nest entrance can be located (typically underground in an old rodent burrow, beneath rocks or landscape timbers, or within a stone wall or wall of a building), it can often be eliminated by carefully applying a wasp aerosol insecticide into the nest opening. Insecticidal dust formulations, e.g., carbaryl (Sevin), bendiocarb (Ficam), Drione, etc., are especially effective provided a hand duster or similar type application device is used to dispense several puffs of the dust into the nest opening. A dry, empty liquid detergent bottle filled no more than halfway with dust and shaken before dispensing works fairly well in lieu of a commercial duster. A few pebbles or marbles added to the bottom of the bottle prevents the dust from caking. Treatment should be performed late at night after all yellowjackets are in the nest and less active. Pinpoint the nest opening during the daytime, so you will remember where to direct your treatment after dark. Approach the nest slowly and do not shine the beam of your flashlight directly into the nest entrance as this may startle the wasps; instead, cast the beam to the side to illuminate the nest indirectly. If possible, place the light on the ground rather than in your hand. As with hornets, yellowjackets are extremely aggressive when the nest is disturbed. It may be prudent to call a professional pest control firm, particularly when access to the nest is difficult.

#### **Allergic Reactions:**

Wasp, hornet and yellowjacket stings can be life-threatening to persons who are allergic to the venom. People who develop hives, difficulty breathing or swallowing, wheezing, or similar

symptoms of allergic reaction should seek medical attention immediately. Itching, pain and localized swelling can be somewhat reduced with antihistamines and an ice pack.

## SHADE TREES & ORNAMENTALS

### PHYTOPHTHORA ROOT, CROWN, AND COLLAR ROT

by John Hartman

The fungus *Phytophthora*, found in many Kentucky landscapes, is capable of causing root, crown, and collar rot diseases of woody plants, especially those in moist sites. Susceptible plants include apple, arborvitae, azalea, beech, birch, boxwood, Chamaecyparis, cherry, dogwood, elm, fir, forsythia, Franklin-tree, hemlock, horsechestnut, Japanese holly, juniper, maple, oak, pear, Pieris, pine, plum, Rhododendron, sweetgum, tuliptree, and yew.

**Symptoms.** Root and lower trunk symptoms include death of absorptive and transport roots, death of phloem and cambial tissues on the bark at the base of the trunk and on buttress roots. Sometimes infected tissues appear as dead streaks on the lower trunk. Dead bark may be scaly or peeled back; bleeding cankers sometimes occur. Infected inner bark and cambium tissue typically turns a cinnamon brown or dark brown color. Often, when root or crown infections are well advanced, the tops of affected trees show symptoms. They include undersized, chlorotic, folded, epinastic leaves; thinning, tufting, or browning of the foliage; premature fall color; stunting; dead branches; and tree decline and death. Not all *Phytophthora* infections occur at the base of the tree; some result in trunk and branch cankers, shoot blight, and even fruit rots.

**Cause.** Root, crown, and collar rots are caused by many species of the fungus *Phytophthora*, including *P. cactorum*, *P. cambivora*, *P. cinnamomi*, *P. citricola*, *P. citrophthora*, *P. cryptogea*, *P. drechsleri*, *P. lateralis*, *P. megasperma*, *P. nicotianae* var. *parasitica*, and *P. syringae*. To accurately diagnose a *Phytophthora* root rot disease requires microscopic examination of laboratory cultures made from infected plant tissues, and to differentiate one species from another requires a specialist.

Conditions favoring disease. Poorly drained soil or wet sites favor the disease. *Phytophthora* produces zoospores which are motile in water allowing the fungus to swim from infected to healthy roots in flooded or waterlogged soils. In addition to aiding dispersal, wet soils stress the root systems, making

them more susceptible to *Phytophthora* diseases. Infection can occur when soil temperatures are in the 60's and 70's F. Soil moisture just below saturation allows sporangia to form in a few hours and motile zoospores to be released soon after. Zoospores infect feeder roots just behind the root cap. The fungus can be splash-dispersed during heavy rains or overhead irrigation. In the nursery, the fungus can be carried in run-off from plant to plant in the field or from an infected plant to the drain holes of containers of nearby healthy plants. *Phytophthora* overwinters in the soil and in plant debris in the form of resistant oospores enabling the fungus to survive in soil and plant debris for long periods of time.

#### Control.

- Begin with disease-free plants.
- In landscapes, improve soil drainage before planting by installing drain tiles; creating planting mounds, berms or drainage ditches; and amending heavy soils in planting beds to promote internal drainage. Do not plant trees and shrubs too deeply.
- Manage water and drainage in nurseries by avoiding wet fields, use of run-off water for irrigation, and overhead watering in late afternoon. For plants grown in containers, plant in well-drained growing media such as composted hardwood bark which suppresses *Phytophthora*. Place containers on an area that has been graded to insure drainage away from the growing area, or place containers on a thick bed of gravel or other well drained material. Group different types of plants by water requirement so that plants are not over or under watered.
- If the field previously harbored *Phytophthora*, avoid using it or fumigate to kill the fungus. For container production, use clean containers.
- Choose species, cultivars and rootstocks that are resistant to *Phytophthora* diseases. See the table below for azalea cultivar ratings.
- Fungicides such as etridiazole (Terrazole, Truban), etridiazole + thiophanate methyl (Banrot), fosetyl-Al (Aliette), metalaxyl (Subdue, Subdue Maxx), or propamocarb (Banol), can be used in the nursery to protect healthy plants. Check the label for rates and application methods and for potential landscape uses suppress *Phytophthora*.

Table 1. Resistance of azalea cultivars to root rot caused by *Phytophthora cinnamomi*

**Resistant:** Alaska (R), Chimes (I), Corrine Murrah (BA), Eikan (S), Formosa (I), Fakir (GD), Glacier (GD), Hampton Beauty (P), Higasa (S), Merlin (GD),

Morning Glow (K), New White (I), Pink Gumpo (S), Polar Seas (GD), Rachel Cunningham (BA), Redwing (I), Rose Greeley (G), Shin-Ki-gen (S), and Sweetheart Supreme (I).

**Susceptible:** Amaghasa (S), Barbara Gail (P), California Sunset (I), China Seas (G), Copperman (GD), Flanders Field (P), Dorothy Gish (R), Gaiety (GD), Gloria (R), Hexe (K), Hinodegiri (K), Kingfisher White Christmas (W), Margaret Douglas (BA), Martha Hitchcock (GD), Massasoit (K), Pink Hiawatha (P), Pride of Summerville (I), Prince of Orange (I), Rentschler's Rose (W), Sensation (P), Warbler (W), White Gish (R), White Gumpo (S), White Jade (BA).

**Highly Susceptible:** Adelaide Pope (N), Carror (N), Catawba (GD), Coral Bells (K), Elaine (N), Emily (N), Fortune (P), General MacArthur (K), Herbert (K), Hershey Red (K), Hino Crimson (K), Jane Spaulding (N), Johga (S), Kow-Ko-Ku (S), Marion Lee (BA), Mrs. G. G. Gerbing (I), Pat Kraft (BA), Pink Cloud (N), Pink Pearl (K), Pinocchio (GD), Purple Splendour (G), Robinhood (GD), Rosebud (G), Royalty (G), Saint James (BA), Snow (K), Sunglow (N), Treasure (GD).

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\*BA = Back Acres, G = Gale, GD = Glenn Dale, I = Indian, K = Kurume, N = NCSU, P = Pericat, R = Rutherford, S = Satsuki, W = Whitewater.

From: R. K. Jones and D. M. Benson. 1982. Phytophthora root rot and its control in nurseries. Plant Pathology Info. Note #202. Dept. of Plant Pathology, North Carolina State University, Raleigh.

**FUNGUS KILLED FLIES COMMON**  
**by Ric Bessin**

Dead flies that are attached to the upper and lower tips of leaves are common in some areas. These are various species of flies that have become infected with a fungus. Often whitish fungal structures can be seen growing between the segments of the abdomen of the dead flies. This is a fungus that only attacks insects, so it is not a threat to crops or other plants. The infected flies perch on leaves or other objects before dying. They appear to be cemented to the leaf.

**DIAGNOSTIC LAB HIGHLIGHTS**  
**by Julie Beale and Paul Bachi**

Recent samples submitted to the Diagnostic Lab have included numerous cases of soybean sudden death syndrome, as well as several cases of soybean cyst

nematode and stem canker. Although tobacco samples have decreased greatly over the past two weeks, we have also seen several cases of severe virus complex on tobacco and a few more cases of black shank and soreshin.

On vegetables we have been seeing powdery mildew on pumpkins; early blight on tomato; anthracnose (fruit rot) on tomato and pepper; and Rhizoctonia stem rot on cabbage.

We are seeing a variety of disease problems on ornamentals and turf, including Botrytis blight on poinsettia and chrysanthemum; bacterial spot on chrysanthemum; bacterial spot on impatiens; bacterial scorch on pin oak; brown patch on fescue turf; and anthracnose on bentgrass.

**INSECT TRAP COUNTS**

**UKREC, Princeton, KY**

**August 11 - 18**

Fall armyworm . . . . .	2
Corn earworm . . . . .	87
European corn borer . . . . .	2
Southwestern corn borer . . . . .	198

**August 18-25**

Fall armyworm . . . . .	3
Corn earworm . . . . .	87
European corn borer . . . . .	6
Southwestern corn borer . . . . .	233

NOTE: Trade names are used to simplify the information presented in this newsletter. No endorsement by the Cooperative Extension Service is intended, nor is criticism implied of similar products that are not named.

