



UNIVERSITY OF ILLINOIS EXTENSION

# HOME, YARD & GARDEN PEST NEWSLETTER

College of Agricultural, Consumer and Environmental Sciences, University of Illinois at Urbana-Champaign  
Illinois Natural History Survey, Champaign

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## PLANT DISEASES

### Persistent Periwinkle Problem

Periwinkle (*Vinca*) is grown as an evergreen or semi-evergreen ground cover in Illinois. It is popular because it provides a pleasant, soft, green ground cover in shady locations. Unfortunately, a fungal disease problem of periwinkle can be very persistent once it invades a site. This disease is called *Vinca* stem blight. If you have had problems with this disease in the past, now is the time to take action to manage the disease for 2007.

*Vinca* stem blight is caused by a fungus named *Phoma exigua* var. *exigua*. The fungus thrives in moist conditions such as those found in dense plantings of ground covers, especially in the spring when there is plenty of moisture and succulent tissue. Black lesions may develop on the leaves and stems first, often girdling and killing runners. Stems and foliage then become brown as they are killed by this fungus. Those infected last year are hosting the fungus now. If you see the black lesions, look for pinhead-sized fruiting bodies of the fungus in the black tissue. A look-alike disease, *Rhizoctonia* root rot of *vinca*, causes top decline by rotting the roots. It may also cause black stem lesions, but you won't find fruiting bodies in the lesions. Not sure which disease is present? Look for these fruiting bodies in the black stem lesions. Dig up an infected plant and look at the root system. *Phoma* does not cause a root rot.

*Vinca* stem blight is difficult to control, but you can make some headway right now. Work with plants only when they are dry. This helps minimize disease spread. Remove infected plants, including old runners that may be hidden among other plants. Clean out dead leaves to open up air movement in the bed. If irrigation is needed, water the soil rather than the foliage. There are many fungicide options to protect new growth. Those with some systemic activity and listed in the *2007 Illinois Commercial Landscape and Turfgrass Pest Management Handbook* include 18 Plus, 26 GT, Banner MAXX, Chipco 26019, Compass, Cygnus, Heritage, Iprodione, ProPensity, Propiconazole, Savvi, Sextant, Spectator, and Zyban. There are also protective contact products avail-

able. Fungicide applications should be initiated when the disease first appears.

For more information about this disease, refer to *Report on Plant Disease*, no. 640, "Stem Blight of *Vinca*" (<http://www.ag.uiuc.edu/%7Evista/horticult.htm>) or review *HYG Pest* news 2006, no. 11. (Nancy Pataky)

### Distinguishing Abiotic and Biotic Plant Problems

It is sometimes difficult to determine whether an environmental stress, insect, mite, chemical, or infectious plant pathogen is the cause of a plant problem. The infectious causes are classified as **biotic** (living) causes of plant problems. They include (but are not limited to) insects, mites, and disease pathogens. Environmental stresses, such as temperature injury and water or nutrient stress, are **abiotic** (nonliving) factors that may affect plant health. Often, multiple factors are to blame for plant decline, and we must determine which one(s) warrants our attention.

The first steps in determining the cause of the problem is to **identify the plant and** become familiar with **the symptoms**. The plant may have areas of chlorosis (yellowing), necrosis (dead areas), or wilting. There may be total plant death, stem tip dieback, or burning of leaf edges or needle tips. One plant may be affected or many of the same species. In some way, the plant does not appear normal or healthy. Find out exactly how the plant is different from a healthy plant and carefully observe symptoms. To observe what is abnormal, you must have some knowledge of healthy plant appearance. Check species or cultivar information to determine normal plant appearance, particular sensitivities, and hardiness qualities. Look at similar plants in the community to observe their symptoms.

**Become familiar with diseases** that may occur on your plant host and in your location. Even if you can't take the time to learn about all disease possibilities, there are many good reference books that you can use to scan the possibilities. As an example, if you have a mature elm that is wilting, a look in *Diseases of Trees and Shrubs*, by Sinclair and Lyon, can alert you to the possibility

of Dutch elm disease. This book provides information on symptoms to look for and how to make a positive diagnosis.

It is just as important to **become familiar with non-infectious problems** on the plant in your locale. It is fairly common knowledge that pin oaks and red maples in Illinois have problems with chlorosis, but did you know pines can be chlorotic in certain sites, too? This problem is widespread and often caused by the high-pH reaction of the soil, which inhibits absorption of iron and/or manganese. Root injury can contribute to symptoms. Noninfectious problems tend to appear frequently in a wide area and on the same host.

Because insect and mite problems frequently resemble diseases, **knowledge of insect and mite problems** on your plant is also helpful in accurate diagnosis. Yellowing and browning of inner needles on a spruce could be the result of a needle cast disease, nutrient stress, or possibly spider mites. Galls on trees might be the result of insect activity or disease infection.

**The pattern of injury** in the landscape also provides some strong clues to the cause of the problem. If all trees in an area are affected, involving many species, I would be inclined to look for an environmental problem. This could be drought, flooding, compaction, or a similar problem. Frost damage this season provides a good example of widespread noninfectious injury. Infectious diseases tend to be spotty and spread slowly among plants of similar species. When investigating a site, determine what species are affected and the pattern in the planting.

Accurate disease diagnosis requires some **knowledge of how to identify disease pathogens**. Common infectious agents of plant disease include fungi, bacteria, viruses, and nematodes. Of all the plant diseases that we might see in the landscape, only those caused by fungal pathogens have the ability to form fruiting bodies. These structures are the spore-producing bodies of the fungus; and they help considerably in proving the presence of a fungal pathogen. Fruiting bodies of *Sphaeropsis* (*Diplodia*) blight of pine confirm that a fungus is causing death of stem tips. Fruiting bodies of *Rhizosphaera* needle cast of spruce confirm that a fungal blight is causing interior needles to die. Mushrooms are fruiting bodies that indicate a wood or root rot when attached to a tree.

Textbooks can help identify fruiting bodies, but often a laboratory is needed in pathogen identifications. The University of Illinois Plant Clinic can help. Information about the Plant Clinic appeared in the first issue of this newsletter.

The final step in diagnosis is **putting the facts together**. Sometimes diagnosis is straightforward and easy, such as a case of crown gall on euonymus or powdery mildew on lilac. More often, however, there are multiple factors involved and they are less obvious. Always seek as much information as you can find and get the big picture. Put it together and talk to others about the problem. The process is challenging but also very rewarding. (*Nancy Pataky*)

## Rose Downy Mildew Suspects

This is the season to watch for rose downy mildew, especially if you have a production facility, holding zone under plastic, or overhead irrigation for your roses. Because the disease can become systemic and be carried in cuttings taken from infected stock, it is imperative that the disease is controlled in production areas.

Downy mildew is caused by the fungus *Peronospora sparsa*, which grows best in cool conditions (60° to 70°F) where the humidity is above 85%, like conditions in many greenhouses and polyhouses in the spring.

Downy mildew symptoms on rose include lesions on the leaves, stems, and flowers. The leaf lesions appear purplish to brown, blocky, and are often accompanied by yellowing of surrounding tissues. Calls of concern at this time of year involve another alarming symptom—severe defoliation.

We can confirm the disease in the lab fairly quickly. The downy mildew fungus forms a downy mass of spores on the underside of leaf lesions. This downy growth is difficult to see without a hand lens or microscope but is visible on the underside of each lesion. In the lab, we place leaves in humidity chambers over night for easy viewing of spores the next day.

The fungus affects newest growth first and is easily spread by wind-blown spores. It may then become systemic in a plant. There are chemicals available to control the fungus. There are many options listed in the *2007 Commercial Landscape and Turfgrass Pest Management Handbook*, as well as in the *Home, Yard, and Garden Pest Guide*. These products are listed as preventives and work best before the disease is established. Look at the table at the end of the chapter to see a listing of fungicides, active ingredients, mobility, and company selling the product. Be sure to get thorough coverage of the foliage, especially the underside of leaves. Because the fungus survives on infected plant parts, remove infected tissue from the site. Place tissue directly into a plastic bag and seal it before moving through the garden.

For more information about rose fungicide ratings, consult *HYG Pest news* 2005, no. 10. Products suggested for downy mildew use are also listed on the Oregon State fact sheet at <http://plant-disease.ippc.orst.edu/disease.cfm?RecordID=985>. (*Nancy Pataky*)

## INSECTS

### Pest Watch

With the last couple of weeks of cold weather, most insects will not be developing. Insect pests to watch for are the same as those reported in the last issue of this newsletter.

**Bumble flower beetles** have been noticed in several areas of northern and central Illinois swarming low to the ground. Bumble flower beetles are scarab beetles in the genus *Euphoria*. Their larvae look like the white grubs found in turf but feed on rotting wood, manure, mulch, compost, and other decaying vegetation. The adult beetles make a buzzing sound as they fly, causing them to be easily confused with bumblebees. These beetles do not sting or cause any other serious harm to people. Bumble flower beetle adults are commonly found on flowers, feeding on pollen and petals. They can damage grapes and other fruit later in the season. (*Phil Nixon*)

### Cold Weather Impact on Insect Pests

The last couple of weeks of cold weather that followed unseasonable mild weather brings up some questions as to how insect pests will react to this situation. Spring-occurring insects have adapted to the various situations that can occur with early, late, wet, and dry springs.

Insects are cold-blooded animals, meaning that their body temperature is similar to that of their surroundings. They do not maintain a body temperature as do mammals and birds. Most insects do not develop or function well at temperatures below 50° F. This base temperature varies a few degrees up or down, depending on the insect species, but is near 50° for most insects. When the temperature hangs between freezing (32° F) and 50° F, insects typically go into a dormant state in which body functions are greatly slowed down.

An interesting feature is that plants appear to develop at temperatures somewhere in the 30s and above. When temperatures hang in the 40s for an extended period in the spring, plants continue to expand leaves and grow stems, and they can get ahead of their insect pests that are present but not developing. As a result, insect pest populations may be typical, but plant damage caused by those pests may be much less than normal.

At temperatures below freezing, many insects that are present during the summer die. However, many spring occurring insects survive temperatures in the 20s, becoming active again once temperatures rise above 50° F. Fewer species survive temperatures that drop into the teens. With the temperatures that we have experienced over the past few weeks, many of the insect pests and their natural enemies that are insects will have died. However, many of them will have survived.

Insect populations typically do not emerge at once. Some hatch from overwintering eggs or emerge from overwintering pupae early, and some of the same species emerge later. This is obvious each spring with the different sizes of eastern tent caterpillar tents and corresponding different-sized caterpillars within them. The smaller tents and caterpillars represent egg masses that hatched later than others. A similar feature can be easily seen in the summer with fall webworm.

Thus, when the cold weather occurred, not all spring-occurring insect pests and natural enemies had hatched or emerged from overwintering stages. Even if the early-hatching and -emerging insects were killed by the cold weather, some will hatch or emerge after the cold temperatures. This may result in less damage to plants due to the loss of the early insects, reducing the overall number of insects attacking the plants. This year, much of the plants' foliage was killed by the cold weather, and the later-hatching and -emerging insects will be present to feed on the replacement foliage as it emerges.

In summary, the insect pests will survive but will probably be less numerous. They will be present to feed on the replacement leaves, so that insect damage will be found. However, the damage due to spring-occurring insects will probably be less than normal. This weather will have little, if any, effect on insects that typically emerge later in the growing season. (*Phil Nixon*)

### Honey Bee Colony Collapse Disorder

There has been a recently reported die-off of bee colonies that has been called serious in some parts of the United States; yet in other areas, beekeepers have not been affected. It has not yet been reported in Illinois, although it has been reported in several midwestern states. This is a threatening situation to beekeepers, as well as those who grow and consume many fruits and vegetables that are primarily pollinated by honey bees. This situation is being called Colony Collapse Disorder (CCD). Similar situations have been labeled in the past as Spring Dwindling, Fall Collapse, Autumn Decline, May Disease, or Disappearing Disease. The term Colony Collapse Disorder is being used instead for a variety of

reasons, including that the situation is not necessarily associated with any particular time of the year and that it is not known whether a disease-causing pathogen is involved.

Other than general symptoms, essentially nothing is known about the causative agent. Consequently, everything becomes suspect. Nutrient shortages, viral infections, bacterial infections, genetic paternity conflicts, chemical misuse, high mite populations, digestive diseases, amoeba infestations, immune system failure, and fungal infections are common suggestions for possibly causing the unexplained colony deaths.

One possible cause that is being investigated is the impact of pesticides on honey bees, particularly the insecticide imidacloprid. This insecticide is widely used to control insect pests of fruit, vegetables, turf, and landscape plants. It is sold as Merit, Marathon, Provado, Admire, and Gaucho. There is research indicating that honey bees that contact imidacloprid can lose their memory of where their hive is located. This feature is being used by some to explain why CCD-affected hives have no bees in them—that the bees left to forage and never returned to the hive.

However, even though imidacloprid is systemic and moves through the plant, it is known to not get into the flowers of a number of plants. With bees primarily visiting flowers, there are questions as to how the bees would pick up the imidacloprid. Another question is when the honey bees pick up the imidacloprid. Many imidacloprid-treated crops finish flowering by midsummer, allowing time for seed or fruit to be produced and ripen before frost. Honey bees tend to feed in late summer and fall on late-season flowers such as goldenrod and native asters. These plants tend to be most numerous in noncrop areas where insecticides are unlikely to be applied. If the bees died earlier in the season from visiting flowering crops, beekeepers surely would have noticed this when they collected honey from the hives.

There have been media reports that this new problem may have been ongoing for 3 to 4 years. The numerous general symptoms combined with the broad timeframe become encompassing enough to include nearly any dead colony. It is important that hysteria does not overtake scientific investigation. Apparently, CCD has so far been found in bees that have been recently stressed, that is, bees that have been moved to different locations. The problem is being found primarily with migratory commercial beekeepers. In discussions of CCD characteristics, it is frequently said that hobby beekeepers are not as observant as commercial beekeepers; consequently, their colonies that recently died were simply counted

as mite-afflicted or caused by a poor queen. However, many hobby beekeepers are very observant of their hives and would have readily observed symptoms as those exhibited by CCD, especially if it had been going on for several years.

A recent survey (March 14 to 19, 2007) of Ohio beekeepers found that on average there was a 72% loss of live colonies from September 2006 until March 2007. A closer breakout indicated that beekeepers with fewer than 100 colonies had an average 55% loss, those with 100 to 500 colonies averaged 67%, and those with over 500 colonies averaged 75% loss. There did not appear to be any difference by area of the state. Perhaps the reason why the percentage of loss as the size of operation increases is due to the amount of time spent by the beekeeper per colony. At one time, a 10% or less loss was considered normal, but when parasitic mites became common, that number rose to nearly 30%. The 72% is an unheard of amount.

It is difficult to determine what caused the loss of so many colonies. Fall of 2006 in most parts of Ohio had a dearth of nectar, resulting in poor diets for the honey bee colony. In some cases, the queen reduced egg-laying due to the dearth of nectar, resulting in older bees in the colony and a reduced population. Many beekeepers fed their bees, but it may not have been the proper diet. With various medications being used by the beekeeper to control mites and disease within a colony, perhaps these medications are reacting with each other and affecting the bees. As beekeepers breed bees to resist mites, perhaps they are also affecting bee longevity. There are a number of other factors that could also be related, all of which need to be considered when thinking of CCD. In the above-mentioned survey, the two most often cited reasons beekeepers believed to be the cause of their loss were starvation and small clusters. They believed both of those were brought on by the fall of 2006.

A study group called the CCD research group (comprised of university researchers, state and federal regulatory officials, Cooperative Extension educators, and industry representatives) is working to determine if the cause is related to chemicals, management, breeding stock, environmental, bee stress, or some other factor. The CCD group and Bee Alert Technology are requesting that beekeepers fill out the National Bee Loss Survey, which can be found at <http://www.beesurvey.com>. This survey can be filled out by beekeepers with operations of any size, whether or not a loss has been suffered; the more information obtained, the better the chance of finding a cause.

If historical precedents hold true, with the arrival of the spring season, the symptoms will fade into remission. Although the situation is frustrating, no one knows the cause or the scope of this disorder. Don't panic and *do* question much of what you hear. (*Phil Nixon; primarily modified from the CCD research group Web site and articles by James E. Tew and John Grafton in the February and March issues of the Ohio Info Bee newsletter.*)

## CHEMICALS

### Disposing of Household Hazardous Waste

Spring is finally here, and with it comes spring cleaning. It's a good time of year to sort through all you've accumulated and evaluate the need of those items. Some of those items may include pesticides and various other chemicals. Does the half-full gallon of nearly neon green paint sitting in your garage come to mind? Painting the nursery bright (blinding) green sounded like a good idea at the time! Perhaps it's the cylinder of fungicide powder you bought to treat the black spot on your roses. Over the years, the black spot problems passed—as did your roses.

Of course, it's best to prevent storing excess pesticides simply by buying smaller containers. Buy only what you need for the season. Unlike fine wine, pesticides don't get better with age. Many tend to lose their effectiveness after a few years. However, prevention won't solve your current overstocked situation. Fortunately, you have a few options for disposing of your old, unwanted pesticides.

1. **Use them up.** You can *usually* apply them to a labeled-use site regardless of whether pests are present or not. Be sure to read and follow all label directions. Sometimes pesticides are taken off the market, or certain uses are removed from the label. In those cases, existing stocks can typically still be used. Rarely does U.S. EPA order a stop-use on the product. For example, it is illegal to apply old stocks of chlordane or 2,4,5-T. To learn about the registration status of your product in question, you can contact the manufacturer or the Illinois Department of Agriculture, (217)785-2427.
2. **Give them away.** Fellow neighboring gardeners may be interested in your castoffs. It's *not* recommended that you sell unwanted pesticides. To sell a pesticide

### 2007 Collection Schedule

Date	Location	Address	Cosponsor(s)
March 17 8 a.m. – 3 p.m.	Dixon Lee County	Dixon High School Parking Lot 315 Lincoln Statue Drive	Lee County Solid Waste
April 14 8 a.m. – 3 p.m.	Cambridge Henry County	Henry County Fairgrounds E. North Street	Henry County Farm Bureau
April 21 8 a.m. – 3 p.m.	Springfield Sangamon County	Illinois State Fairgrounds (Enter Gate 11.) off Sangamon	Sangamon County, City of Springfield
April 21 8 a.m. – 3 p.m.	Mt. Carroll Carroll County	Carroll County Highway Department 10735 Mill Road	Jo-Carroll Solid Waste, U of I Extension, Carroll County Health Department
April 28 8 a.m. – 3 p.m.	Chicago Cook County	DeVry Technical Institute 3300 North Campbell	Chicago Department of Environment
May 5 8 a.m. – 3 p.m.	Shaumburg Cook County	Schaumburg High School 1100 W. Schaumburg Road	Metropolitan Water Reclamation District of Greater Chicago
May 5 8 a.m. – 3 p.m.	Sycamore DeKalb County	Dekalb County Farm Bureau 1350 W. Prairie Drive	DeKalb County Farm Bureau
May 19 8 a.m. – 3 p.m.	Norris City White County	Norris City Parking Lot 103 E. Main Street	Egyptian Health Department, Village of Norris
May 19 8 a.m. – 3 p.m.	St. Charles Kane County	Kane County Fairgrounds (Enter on Oak Street west of Randall Road.)	Kane County Department of Environment
June 2 8 a.m. – 3 p.m.	Wheaton DuPage County	County Complex Parking Lot 421 N. County Farm Road	DuPage County

## Long-term Facilities

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The following long-term facilities are available for disposal of HHW. Please phone ahead to determine availability and open hours.

**Chicago:** Household Products and Electronics Collection and Training Center  
1150 N. North Branch  
Goose Island

*Location:* (From the Kennedy Expressway, take the Division Street [east] exit.)

*Hours:* Tuesday, 7 a.m. – noon; Thursday, 2 p.m. – 7. p.m.; and the first Saturday of each month, 8 a.m. – 3 p.m.

This long-term HHW program is the result of an intergovernmental agreement between the Illinois EPA and the City of Chicago's Department of the Environment. This facility accepts batteries, electronics, household chemicals, and even old medicines.

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**Naperville:** 1971 Brookdale Rd.

*Location:* Fire Station #4

*For information:* (630)420-6700 #7559

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**Rockford:** 333 Kishwaukee

*Location:* Rock River Reclamation District

*For information:* (815)967-6737

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**Lake County:** The Solid Waste Agency of Lake County (SWALCO) currently operates a long-term household chemical waste collection program. Information and a collection schedule can be found on the SWALCO Web site, or by calling (847)336-9340

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For more information, call IEPA's Waste Reduction Unit at (217)785-8604 or check out <http://www.epa.state.il.us/land/hazardous-waste/household-haz-waste/hhwc-schedule.html>

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legally, if must still be in the original packaging with the complete label. If the pesticide is restricted use, you must be licensed in order to sell it. If the product registration has been cancelled, selling is illegal.

### 3. Take them to a hazardous waste collection event.

The Illinois Environmental Protection Agency (IEPA) has scheduled 10 household hazardous waste (HHW) collection events to be held across Illinois this spring.

The Illinois Poison Center's Web site (<http://www.mchc.org/ipc/>) has the following list of what is and is not accepted at a collection site. Use this list as a guide, but it may be best to call first if in doubt. Generally, chemical waste has packaging that contains the words "**danger,**" "**toxic,**" "**flammable,**" "**corrosive,**" and/or "**reactive.**" Please note that fungicides and insecticides are considered to be garden/lawn chemicals. They were likely listed separately in the table for clarification. Likewise, herbicides (including crabgrass preventers) must have been overlooked, but I'm certain they are accepted at HHWs as well.

**Materials ACCEPTED at HHW collections:**

oil-based paint  
 solvents  
 old prescriptions  
 motor oil  
 household cleaners  
 household batteries  
 antifreeze  
 pool chemicals  
 asbestos  
**garden/law chemicals**  
 old gasoline  
**fungicides**  
 metal polishes  
 paint remover  
**insecticides**  
 drain cleaner  
 aerosol products  
 hobby chemicals  
 mercury (including thermometers and  
 thermostats)

**Materials NOT ACCEPTED at HHW collections:**

business wastes  
 tires  
 propane tanks  
 explosives/ammunition  
 fire extinguishers  
 lead-acid batteries  
 latex paint  
**agricultural chemicals**  
 fireworks  
 smoke detectors  
 medical wastes

There are special hazardous material collection events for other nonhousehold types of pesticides:

- Agricultural pesticides are collected at various scheduled "Agricultural Pesticide Clean Sweep" events. Contact the Illinois Department of Agriculture, (217)785-2427, for more information.
- Structural pesticides (those used by professional applicators to control pests in and around structures) are collected at "Structural Pesticide Clean Sweep" sites. Contact the Illinois Department of Public Health, (217)782-4674, for more information. (*Michelle Wiesbrook*)

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*Home, Yard, and Garden Pest Newsletter* is prepared by Extension specialists from the University of Illinois at Urbana-Champaign and the Illinois Natural History Survey. Information for this newsletter is gathered with the help of staff members, Extension field staff, and others. Karel Jacobs and Donna Danielson of The Morton Arboretum also provide information and articles.

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