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Insect Pests of Ornamental Plants

James A. Reinert Assistant Professor (Entomology) Agricultural Research Center, Fort Lauderdale

Not only must turfgrass management personnel be concerned with the insect pests of turfgrasses, but they must also be familiar with many insects and their damage on ornamental plants. In many cases, it is to manage turf problems. A beautiful, well-maintained turf can be completely masked or overlooked if the ornamental plants within the confines of turf plantings do not also recieve adequate attention.

If you want to keep ornamental shrubs and trees healthy and attractive, they need to be examined frequently for insect buildup. All too often our ornamentals are "let go" until suddenly the plants appear to be dying overnight. Once they have been attacked by insects, the best we can do is to prevent further damage.

While a great many species of insects attack ornamental plants relatively few are destructive enough to warrant chemical control. Occasionally, however, populations develop to outbreak proportions and the application of pesticides become advisable. There are a few very serious pests, such as some of the borers, which are not satisfactorily controlled by present control recommendations. Some ornamentals, such as hibiscus, have a number of insect problems and these as well as other features should be considered when deciding on suitable material for ornamental plantings.

Some insect outbreaks occur at definite seasons of the year (leaf beetles and oleander caterpillars), while others are active throughout the year (aphids, scale insects, and borers). Numerous variations occur in the method of locomotion, manner of feeding, life history and reproductive habits of the pests. For these reasons the insects are discussed under several categories to aid one in planning his pest management program. For example, insects feeding between the epidermal layers of the leaf (leaf miners) require control methods different from those living on the leaf surface, and those insects which lose the ability to move about during portions of their life cycle (scales) require more thorough and repeated applications of insecticides than many of those which move about freely.

Some insect pests attack many different plants, showing little or not partiality. These are called *general feeders*. Others are more selective in choosing plants to attack. These are called *specific feeders*. For purposes of this discussion the pests will be divided into two groups based upon the way they feed. 1. Insects with piercing-sucking mouthparts: They have beak-like mouthparts which are used for probing the plant tissue and sucking the plant juices. They feed in basically the same way as a mosquito pierces your skin and removes your blood.

Examples are: scales, aphids, whiteflies, mealybugs, and stinkbugs.

2. Insects with chewing mouthparts: They bite off and swallow portions of the ant. They mat eat the leaves or flowers, bore into the stem, or feed on the roots.

Examples are: Beetles, caterpillars, grasshoppers, and grubs.

SUCKING PESTS

Aphids or plant lice — are small, soft, bodied insects usually attacking young tender growth. They remove plant juices and cause new developing leaves to cup or curl. Color varies from green to reddish to black. Plants frequently found infested are meelia, citrus, hibiscus, ixora, oleander, palm, and roses.

Scales — are often overlooked on plants; usually exhibiting colors or shapes closely resembling the host plant. There are many differnt kinds of armored and soft scales that attack ornamental plants. Most scale insects attach themsleves to the host plant shortly after hatching, and rarely ever move from their feeding site for the rest of their lives. They feed by inserting a thread-like beak into the plant tissue and removing plant juices.

Scales may be found feeding on almost all our ornamentals and are among the most difficult insect groups to control. Familiar species are the brown soft scale, tea scale, oyster shell scale, and nigra scale. Two of the most severe problems are the slenade or hibiscus scale on hibiscus and the the oleander scale on oleander, bischofia and magnolia.

Whiteflies — are very small white insects which infest the underside of leaves. They are circular, flat, almost translucent, and very difficult to detect. They are very common on gardenia, ligustrum, viburnum and citrus.

Mealybugs — are soft bodied scale-like insects which are usually covered with a powdery or cottony, wax-like material. With a few exceptions, they are able to move about throughout their lives and are important pests of annuals and pernnials, in addition to woody ornamentals. Some of the most common host plants are azalea, citrus, coleus, croton, rose, and viburnum.

Lacebugs — are small, broad and flat insects usually brown in color and the wings are clear with a fine lacelike appearance. Immature lacebugs are wingless and covered with spines. Damage appears as a whitish speckling on the top side of the leaves, which is caused by the feeding on the undersides of the leaves. The presence by shiny black spots of excrement on the underside of the leaves is a good indication of a lacebug infestation. Some of the most common hosts are azalea, pyracantha, and sycamore.

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(continued from page 32)

Thrips — are tiny slender insects which cause injury by puncturing the plant tissue and then sucking up the exuding sap. They restrict their feeding to the foilage, buds, and flowers. Infested leaves have a strippled appearance similar to that resulting from mite infestations. Usually it is not difficult to distinguish between thrips and mites as thrips leave small brownish specks of excrement wherever they feed. Frequently infested buds fail to open or the flowers are deformed. Feeding punctures on the flowers turn brown and the petals eventually become streaked and discolored. Flowers suspected of being infested should be shaken over a sheet of white paper to detect the thrips. The most important species on ornamentals are the Florida flower thrips, red-banded thrips, and greenhouse thrips. The Cuban-laurel thrips is probably the most familiar in South Florida where it curls developing leaves on Ficus.

Planthoppers — refer to a group of insects which hop about when disturbed on the plant. Included in this group are leafhoppers, thornbugs, fulgoridaes, and spittlebugs. These insects are not considered important as a group, but several are quite unusual. Immature spittlebugs are always found in a leaf axis surrounded by a mass of spittle. The fulgoridaes and thornbugs are usually associated with a waxen mass on the stems or leaves and most thornbugs are equipped with a conspicuous hump which gives the plant on which they are resting a thorny appearance.

Spider mites — are among the most common pests which attack ornamental plants in Florida. Mites are not insects but are more closely related to spiders and ticks, since they have four pairs of legs. Often their presence is not detected until they become very numerous and cause obvious plant damage. Their damage was discussed above in relation to thrips. Some mite species restrict their feeding to a single host while others are general feeders on a variety of plants. Almost all species of annual, perennial, and woody ornamental plants are subject to attack by one or more species of mites.

Eriophid mites — are extremely small and often high magnification is required to even see them; their damage is obvious, often appearing as a witches broom, stunting, or shortening of the internodes. Many new species are being discovered on ornamentals, but the eriophid mites of podocarpus, black olive, and camellia are most familiar.

OTHER PESTS

The presence of sooty mold and ants are good indications of the presence of several types of sucking insects. Sooty mold is a black fungus that grows in the excrement of aphids, mealybugs, many soft scales, and particularly of immature whiteflies. This fungus detracts from the beauty of ornamental plants but does not cause as much injury as most people believe. Controlling the above pests will easily prevent the problems of sooty mold.

Ants are fond of "honeydew" excreted by these sucking insects, and they may protect and move these pests around from plant to plant. They are social insects and control should be directed at their colonies.

CHEWING PESTS

Caterpillars — are the immature stage of moths and butterflies and numerous species feed on ornamentals. Because of their habits and control, they are grouped into three categories:

(1) Leaf-eating caterpillars—include worms of considerable variation. They devour foliage, leaving holes and irregular areas, or they may even strip off entire leaves. Some larvae, such as the oleander caterpillar and the azalea defoliator, restrict their feeding to the foliage of a single host plant. Other larvae, as the bagworm and tussock moth, restrict their feeding to closely related plants. Still others, such as the corn earworm, loopers, and woolybears, attack almost any type of vegetation. Other familiar species include: armyworms, honrworms, leaf rollers, and tent caterpillars.

(2) Underground caterpillars — have similar habits and are called cutworms. For the most part they are nocturnal and remain hidden in the ground near the host plant during the day. They work at about ground level, cutting off the seedling plant so that it falls over and dies. In general, cutworms are smooth, shiny caterpillars, grey or brownish in color with black markings.

(3) Nettling catterpillars — can severly defoliate several ornamental plants. These include Io moth larvae and saddle back caterpillar on hibiscus and several species of palms. The puss moth caterpillar feeds on oak and sycamore trees. These caterpillars are most important because they have poisonous hairs and should be avoided and be handled with extreme care.

Leaf miners — are small insects that feed between the upper and lower surfaces of the leaves. Their feeding causes a blotch mine or blister when the larvae excavates a broad path, a linear mine if the larvae tunnels straight ahead, and a serpentine mine if it follows a winding course. The mines provide an excellent entrance for secondary fungi.

Grasshoppers, Katydids and Crickets — frequently become a problem in flower gardens. These insects occasionally consume large quantities of foliage, flowers, and sometimes other tender growth. Grasshoppers are easy to see and should be controlled before they become numerous. Katydids, which are green in color and feed at night, are not commonly found in large numbers. Mole crickets, although not serious pests of woody ornamental plants, are common invaders into flower gardens and other foliage plants adjacent to turf plantings.

Beetles and grubs — frequently cause injury in ornamental plantings. Beetles hard-shelled insects which devour various parts of plants in much the same way grasshoppers and katydids. Some feed at night and hide beneath the plants during the day, while many feed during the day. Flower beetles are difficult to control as they may fly in from adjacent areas in large numbers. The larvae (grubs) of most beetles are also destructive. They may feed on the roots or bore through the stems and branches while others may be leaf miners.





Future of Golf Tournament

The Palm Beach Chapter GCSA held their 6th annual Future of Golf Tournament June 6th at the prestigious Quail Ridge C.C.

Nearly \$6,000 was netted to benefit turf research and junior golf. A full field of 128 players paid \$50 per man to participate, and 39 sponsors purchased tee signs at \$100 apiece to raise these much needed funds.

Winners of the 4-man scramble event shot a 13-under par 59.

They are left to right: Bill Jeffrey, Dick Gray, Dave Lottes and Pat Cooney. ■



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It's unwise to pay too much, but it's worse to pay too little. When you may too much, you lose a little money—that is all. When you pay too little, you sometimes lose everything, because the thing you bought was incapable of doing the job it was bought to do. The common law of business balance prohibits paying a little and getting a lot—it can't be done. If you deal with the lowest bidder, it is well to add something for the risk you run, and, if you do that, you will have enough to pay for something better.

> JOHN RUSKIN, Author Economist February 8, 1819 - January 20, 1900

As a rule a man is a fool, When it's HOT he wants it COOL, When it's COOL he wants it HOT, Always wants what is not.

IS THIS YOU?

"Thinking I could save time, I rigged up a beam with a pulley at the top of the house, and a rope leading to the ground. I tied an empty barrel on one end of the rope, pulled it to the top of the house, and then fastened the other end of the rope to a tree. Going up to the top of the house, I filled the barrel with bricks. Then I went back down and unfastened the rope to let the barrel down. Unfortunately, the barrel of bricks was now heavier than I, and before I knew what was happening, the barrel jerked me up in the air. I hung onto the rope and halfway up, I met the barrel coming down, receiving a severe blow to the left shoulder.

"I then continued up to the top, banging my head on the beam and jamming my fingers in the pulley.

"When the barrel hit the ground, the botom burst, spilling the bricks. As I was now heavier than the barrel, I started down at high speed. Halfway down, I met the empty barrel coming up, receiving severe lacerations to my shins. When I hit the ground, I landed on the bricks, receiving several cuts and contusions from the sharp edges of the bricks. At this point, I must have become confused, as I let go of the rope. The barrel came down, striking me on the head, and I woke up in the hospital. I respectfully request sick leave."



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TO PLAY THE GAME

To play the game or not to play the game. We have heard this statement from the time we competed in sports and throughout our working career. It is not only our profession as professional golf course superintendents but in all aspects of the business world you have to know the entire scope of the profession you are in.

In our position as golf course superintendents we must be concerned with not only the aesthetics of our golf course facility but the playability as seen and played by our members or the public golfers. How many times have you heard from one of your members, Don, the course down the road has this or that and have you seen the difference it makes? I'm sure we all have, and if you



haven't, you will. Now, to be able to answer questions of this kind you have to get out to the other courses in your area and be able to evaluate your course situation with the one down the road. At my facility we have members and public play. I talk with our members about our routine maintenance and inform them of special cultural practices that will be done on the course. I admit that I don't get out and hit the ball as often as I should. And you can tell with the 26 handicap I have with our North Florida Superintendent's Chapter.

To compensate for myself not getting out to play as much as I would like I endeavor to place men that play golf and/or are interested in our field.

I an fortunate to have a general manager, Jim Smith, that has played in the U.S. Open and he surely knows the game of golf. What better ally could you have on your side? Lane Pace came into my office one morning (he is my golf course set up man and operator) and asked for a day off next week. Now, we just had a couple of large tournaments at our course and Lane did an excellent job of preparing our course for play. Lane said he would like to be able to play in a tournament at one of the clubs in our area that is being held by the U.S.G.A. We had prepared our course for this event the previous year and it would be an excellent way for me to extend my knowledge through one of my crew members and Lane also would be able to play the game that he so much enjoys. Well, it turned out that Mr. Pace won the U.S.G.A. Public Open first place in Florida! I'm in hog heaven now, our club has two U.S.G.A. qualifiers. What better man could I have than Lane for a course set up man? I am a golf course facility superintendent and one of my responsibilities is personnel management and I could not ask for anything better than having a professional as Mr. Smith or an amateur golfer as Lane Pace on my side. I have to thank both of them for giving me the knowledge of the game of golf as they have in the past. Now if I could just squeeze in a few golf lessons from these men!

I might not ever win a green jacket, but I will see you all at the the annual Golf Course Superintendents Golf Tournament and maybe Jim and Lane can be proud that they started their superintendent off number one tee in the right direction!

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The Moorings Club Golf Course "TOUGH AND TIGHT"

By Irene Jones

According to Mike Perham, CGCS, "This short-length course of 4,338 yards is long on hazards and challenge." Mike has been the Golf Course Superintendent at The Moorings Club Golf Course for three and a half years. It is obvious after speaking with Mike that he has found his special niche at The Moorings, located between the Atlantic Ocean and the Indian River, four miles down the road from the seaside town of Vero Beach, Florida. But let's back up a few years and begin at the beginning. The first contact Mike had with the game of golf was through his involvement with a Junior Golf Program sponsored by Palm Beach County. Another major factor which contributed to a continuing interest in the game was the family's membership at the original PGA Golf Course where he was able to play 3 or 4 times a week.

It is apparent that family involvement and interest in golf pointed Mike in the direction of the golf industry as a career. During the summer of his junior year in high school he took a job on The Boca West Golf Course, where he filled the position of spray man. After that summer he definitely knew one thing: he did not want to continue in this position.

Mike graduated from high school in 1975 at the same time his older brother John Perham was graduating from

the golf course operations school at Lake City Community College. Right after graduation John accepted the position of Assistant Golf Course Superintendent at The Indian Springs Country Club in Pompano Beach, Florida, and Mike went to work for his brother. It was during this time that he realized how personally challenging the role of Golf Course Manager/Superintendent could be.

Mike entered Lake City Community College also, in the fall of 1976. Upon his graduation from the Golf Course Operations at Lake City he came to work for Dan Jones, CGCS at The Turnberry Isles Golf Course in Miami, Florida. I came to know Mike during his two years as Dan's assistant. *The Florida Green* was experiencing some real growing pains during this time and he would help us out with proof-reading and a number of other magazine related jobs during his off duty hours.

Mike married Marci in November 1978. Now their family includes a daughter, four-year-old Laura and one-year old Christopher.

After Turnberry, Mike made the move up to Golf Course Superintendent at Boca Del Mar Country Club in Boca Raton, where he remained until coming up to The Moor-(continued on page 40)



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(continued from page 38)

ings Club as their Superintendent three and a half years ago. He began to work on becoming a fully Certified Golf Course Superintendent and qualified for that title after taking the examination in February of 1985 at the GCSAA Convention in Washington, D.C.

Mike is now able to bring all his preparation, training and experience into play at The Moorings Club. "When I came on the scene there was already a "good nucleus crew in operation," in fact one or two of the crew were around when the golf course was being built. The crew all stayed when Mike came on board. Even now, the crew turn over rate is less than 10% per year. "By moving the pay scale up in accordance with the value of the employee and by giving excellent benefits the club has rewarded people for their longevity and service."

The golf course maintenance operation and the pro shop operation enjoy an excellent working relationship. According to Mike, "Our golf professional, Rick Graves, is sympathetic to the course maintenance conditions and programs. He is a good buffer between members and the maintenance department. He helps the members understand why certain maintenance procedures are being done out on the course." Rick Graves, Head Professional, just set the 5 under par course record at The Moorings this spring. He also holds a degree in agronomy from The University of Florida.

The Moorings is a private membership club, controlled by Moorings Development Company. "They are a very good group of people to work for, the company is very supportative of the programs and projects on the golf course." An example of this was the support given last September when the members arrived back at the club to find the course not up to its usual "par condition" because of having to shut off and move the irrigation system during the entire month of August. Management explained the situation to the satisfaction of all concerned.

Oaks, sable plams and mangroves, wind, water, and estuary type native Florida grasses describe this 18 hole 4,338 yard par 63 course. The greens are not oversized, instead of being large, they roll, curve and fall and they offer just the right ingredients for a tough test of golf. Interesting and difficult have often been used to describe this short-length course. Pete Dye is the architect. If the golfer hits the ball where Dye is inviting him, then he will have an excellent approach to the green; but if he lands it anywhere else he will find himself in trouble. "When you create hazards which allow challenge," Dye believes, "you ought to reward the player by putting him in the best position for his next shot. This is the only really valid principle in golf course design."

As "most challenging" Mike names: the one and a half acres of green surface (Tifgreen 328) which are mowed by hand all year long. The hand mowed tees, and the fact that he is starting to Triplex mow all fairways now. Careful attention is also given to the 62 small, tight, well bunkered sand traps, and the one a a half acres of "Pete Dye waste area traps."

In fact, it was at The Moorings Club that Pete Dye first tried his unique features of waste areas and grass bunkers. The Moorings offers target type golf. The tees and fairways are planted in hybrid Bermudagrass, while the rough is planted with Bahiagrass.

Mike described the front nine holes as "going right out into the Indian River." That is the nine holes that I want to play! ■

