TURF PEST CONTROL

THERE ARE FOUR categories of insects and other related pests often found in turf, according to Clemson University entomologist Professor D. K. Pollet. The four categories are: soil inhabiting or root feeding, leaf and stem feeding, "juice sucking" and secondary insects and nuisances.

To control any insect pest positive identification is essential, Pollet told WEEDS, TREES & TURF. "Application of the correct material the proper way to control the pest is necessary to prevent injury to the turf," he said. There are also other problems in control of pests, he said, many of them relating to Washington.

"Turf pests, like other pests, occur year after year," he said. "Effective control is getting harder. The EPA rules and regulations concerning use of chemicals affect controlling measures used by the chemical industry, grounds maintenance workers, commercial applicators, universities and golf course superintendents."

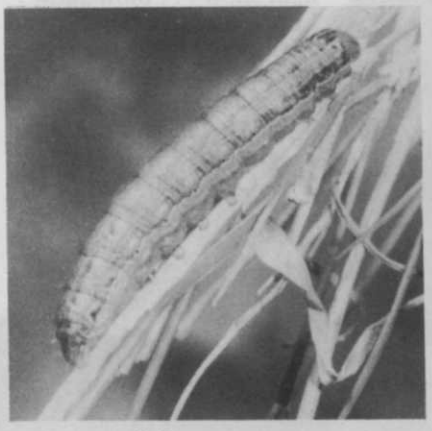
Pollet feels the EPA has made some rules and regulations concerning the use of chemicals about which there is considerable question. "They have created a situation where turf people have to use more toxic, more specific and more costly materials to control the same pests which were controlled with less toxic and less expensive materials only a few years ago.

"The EPA has taken upon itself to be judge, jury and arbitrator when it comes to determining whether a pesticide will be used or not," he said. "We have to sit up and take note and help to make the decisions more unbiased. It is necessary to be alert to what is happening and actively support a safe and effective program to help each other to assure that when pesticides are removed from the market, that they are justifiably removed."

Professor Pollet said soil infesting insects which feed on the roots include white grubs, wireworms, mole crickets and ground pearls.

The immature or larval stage of several species of beetles which include June beetles, Japanese beetles, green June beetles, the Asiatic gar-

(continued on page 20)



Fall armyworm

True armyworm

Green June beetle larva, also called white grub

TURF PEST CONTROL *(from page 16)*

den beetle and masked and rose chafers constitute the white grubs. "These C-shaped white larvae remain as little as 10 months or as long as three years in the soil," he said. "They burrow in the soil around the roots and feed there about an inch or two below the soil surface. Irregular brown patches in the turf, presence of moles and large numbers of birds feeding in the sod are good indications of an infestation of grubs."

Wireworms are primarily yellowish to dark brown, smooth and slender. They bore into the underground parts of the stems and feed on roots causing the grass to wither and die. Mole crickets are light brown in color and are adapted for digging. The stout and shovel-like forelegs allow them to dig rapidly. Beside feeding on the roots, their injury is twofold — burrowing of the soil uproots seedlings and the soil dries out faster. A single cricket can damage several yards of newly seeded lawn in a single night.

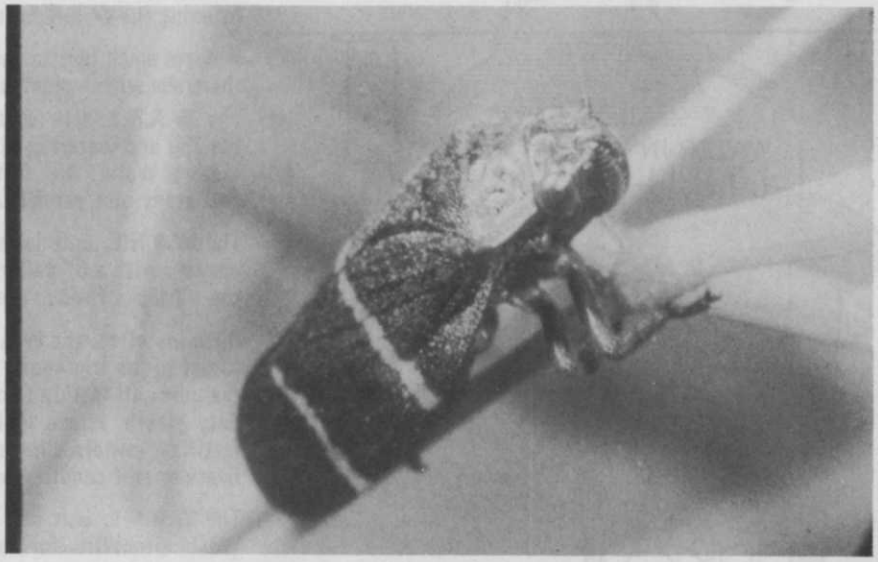
Pollet said ground pearls are scale insects which secrete a white waxy sac about their bodies giving them the appearance of small pearls. These pests cause irregular dead patches in the turf and are very difficult to control. Billbug larvae are similar to white grubs, but are legless and the adults are weevils or snout beetles. "The weevils lay eggs in the stems of grasses and the grub bores or feeds in the grass stems," he said. "Small dead patches of grass easily lifted from the soil is usually observed in late summer. The dead stems contain a sawdust-like material from the boring of the grub."

He said insect pests which feed on the leaves and stems of grasses include sod webworms, cutworms and armyworms. All are caterpillars of small moths.

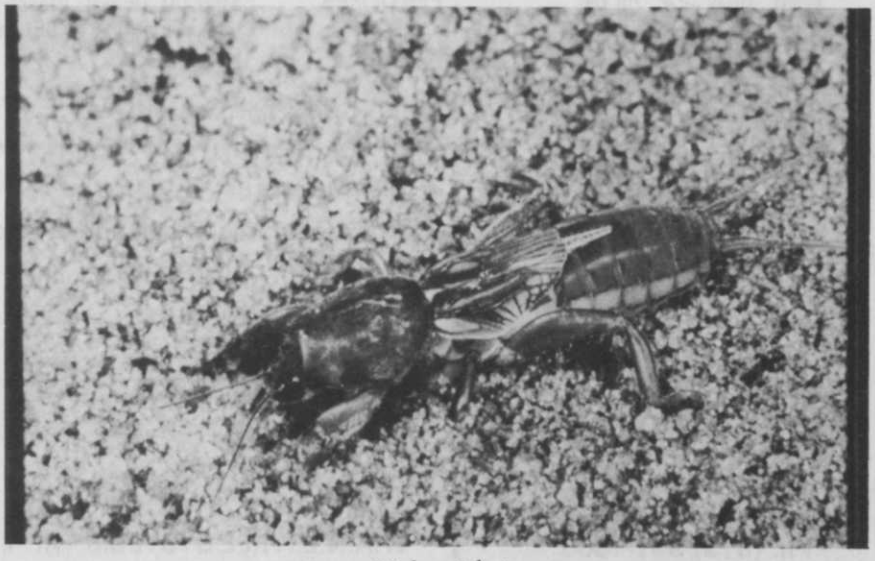
Sod webworms are small grayish or whitish moths which rest during the day and fly about at night over the lawn with the females scattering eggs. The caterpillars or worms which hatch feed only at night and live in a silken tunnel in the soil during the day. They feed, line and reinforce the tunnel walls with small pieces of blades of grass. Infested

(continued on page 32)

Spittlebug adult emerging from spittle mass



Adult spittlebug



Mole cricket

TURF PEST CONTROL *(from page 20)*

areas usually turn brown and enlarge rapidly if uncontrolled. The worms may be found by separating the dry sod.

Armyworms are named because of their habits, Pollet said. They move across the lawn or turf in large numbers and eat everything. The two common armyworms are the fall and true armyworms, both of which can do serious damage to turf. Infestations noted early may appear as a small webbed area in the turf. As they develop the turf may be eaten to the soil.

Cutworms are another of the night feeding caterpillars. "They cut off and eat blades of grass, some species cut off plants near the soil line," Pollet said. "They usually burrow into the soil during the day leaving small holes in the turf around areas where they have fed. When found or disturbed, they curl up and play possum as a defense mechanism."

The most varied group of turf insect pests are those that suck the life from the grass. These include chinch bugs, aphids, leafhoppers, spittlebugs and scales.

Chinch bugs and aphids cause similar damage to turf leaving large circular patches of yellowing or dying grass. Chinch bugs feeding in the turf may cause extensive damage and never be observed. To determine if chinch bugs are causing damage, it is often necessary to flood them out of their feeding sites. Aphids may be found on the outer edge of the damage area, massed on the grass leaves. Aphid damage is usually more common in shaded areas, like under trees.

Leafhoppers cause a mottling of light and dark green areas where feeding has occurred. They usually appear in high numbers in turf and within a few days are gone. Control is usually unnecessary except where high numbers are feeding in newly seeded areas. This feeding can kill new stands of grass. Spittlebugs, although similar in structure to leafhoppers, are slightly larger and produce a frothy spittle about the nymphs as they feed on the plant sap. Infestation of turf by spittlebugs is easily recognized by these frothy masses. Although they appear to be causing injury to the lawn or turf, control is seldom necessary except to remove the unsightly masses.

Rhodesgrass scale attacks the crown of the grass plants, causing them to wither and die. High infestations can cause large dead areas and are very damaging on greens. Scales are hard to detect because of their ability to camouflage themselves and the fact that they are not very active on the crowns of the plants. Heavy infestations can be mistaken for over fertilization or caked fertilizer on the grass plants, particularly in the areas where the grass blades join the stems.

The final group of turf pests include those that burrow into the soil indirectly damaging the turf and other anthropods which may be considered nuisances. The former includes ants, bees, wasps and periodical cicadas.

"These insects live in the soil," Pollet said. "The damage they cause is the result of them setting up housekeeping. Their digging and tunneling causes the soil to become soft, spongy and to dry out quickly." The nuisance turf pest includes sowbugs, millipedes, centipedes, earwigs, crickets, fleas, ticks, chiggers, thrips and spiders. Some of these cause no problem except for their occasional high populations. Fleas, ticks, chiggers and thrips can be a nuisance and a problem. Their bites can cause irritation, itching and rashes. Occasionally, fleas and ticks can be associated with the transmission of disease organisms.□

Clemson University entomologist Professor D. K. Pollet said many turf pests are held in check by other insects. Predators and parasites may be found wherever pest populations occur. Endemic populations of bacteria and fungi are also effective in controlling or helping to control these pests. Where these natural controls cannot maintain the pests below damaging population, the following table shows the chemicals which have been found effective against these pests:

	Diazinon	Malathion	Sevin	Baygon	Proxol	Chlordane	Dursban	Aspon	Dylox
White Grubs	X				X	X	X		X
Billbugs	X		X						
Wireworms	X					X			
Mole Crickets	X			X			X		
Ground Pearls	No effective control								
Sod webworms	X		X	X	X		X	X	X
Armyworms	X		X		X				X
Cutworms	X		X		X				X
Chinch bugs	X		X	X	X		X	X	
Aphids	X	X							
Leafhoppers	X	X	X						
Rhodegrass Scale	X	X	X						
Spittlebug	X		X				X		
Ants	X					X	X		
Bees & Wasps	X		X						
Periodical Cicada			X						
Sowbugs	X						X		
Millipedes & Centipedes	X		X			X	X		
Earwigs	X		X				X		
Crickets	X			X		X	X		
Fleas		X	X	X			X		
Ticks	X	X	X						
Chiggers	X	X							
Thrips	X	X							
Spiders						X			