LAWN INSECT PROBLEMS - HAVE WE BEEN OVERLOOKING THEM

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INTRODUCTION. Two common observations can be stated as they pertain to turfgrass insects especially in home lawn situations. Early, potentially damaging insect invasions are usually overlooked even when sudden turfgrass weakness occurs. And more seriously, concern for insect problems is generally expressed after irreversible damage has occurred. Because of these two failures, we cannot over emphasize the value of even a limited knowledge of the identification and biology of the more important turfgrass insects. The value of an immediate inspection of any suspected weakening of the grass will go far toward preventing irreversible turf damage. The only cure is the expensive time-consuming task of renovation and reseeding. With these thoughts in mind I will cover the problems involved with 3 groups of serious turfgrass insects.

SOD WEBWORMS OR LAWN MOTHS. Habits. Sod webworms were serious in Michigan in 1977 as they generally were in the Northeast. Several species are involved but all have similar life cycles, habits, and destructive potentials. The earliest indications of impending problems is the presence of many moths flying over the lawns and especially noticeable on warm nights following hot sunny days. They are most readily seen in headlights of a car shining over the lawn. Their sole purpose in making these flights is to drop eggs into the grass.

Damage. Turf damage occurs as soon as eggs hatch but is not immediately discernible since the larvae are so small. However, as larval growth accelerates turf damage becomes apparent. Larvae feed on the leaves and stems and eventually the crowns as they continue to grow. Larvae are seldom seen since they are nocturnal. They remain in tunnels in the thatch during the day.

Turf damage is first evident as ragged, partially eaten leaves. Yellow spots follow, then small patches of dead grass and finally large dead areas of turf. Infestations can occur any time during the summer and there may be a generation or two in our latitude. Insecticidal treatments made before the period that large dead patches occur can prevent further damage. Diazinon, chlopyrifos (Dursban^{R}) and carbaryl (Sevin^{R}) are effective chemicals.

BLUEGRASS BILLBUG. Biology and habits. This native insect overwinters as adults hibernating in fallen leaves, clumps of grass, window wells and other partially protected areas. Adults have a distinct "snout", are dull black, about 8 mm long and may be partially encrusted with dried mud. They leave hibernating quarters on warm sunny days of spring and are seen migrating over paved areas on their way to feed on stems of grasses. Eggs are deposited in the stems in the same area of feeding. Larvae feed in the stems until they outgrow the diameter of the stem then migrate out and complete their feeding in the crown of the grass. Larvae are legless, white with a brown head and when fully grown are about 6 mm in length. Pupation occurs just below the soil surface in late July and August with a few stragglers pupating in September. As adults emerge in late September and October they can again be seen wandering over paved areas in search of hibernating quarters.

Damage becomes evident during July or August when feeding on the crown of plants is most common. As in nearly all turf damage by insects, the first evidence of a problem is yellowing, then small dead patches of grass before large patches die. Larvae may not always be found but the presence of saw dust-like frass near the crown of plants indicates that bluegrass billbug larvae were present.

Control. Bluegrass billbugs are readily controllable with diazinon, chlorpyrifos, or carbaryl but timing of application is most important. Damage can be expected later when adults can be seen during June and early July at the rate of more than 1/minute migrating over paved sidewalks and driveways. Applying insecticides at this time to kill the adults before egg laying is the most effective treatment.

SCARABAEID GRUBS. Biology and habits. There is a trend towards most members of this group increasing in populations in the Midwest and Northeast. The wetter summers over the past few years allow eggs to develop without desiccation and result in gradually increasing populations from year to year. This is especially true of the Japanese beetle which is becoming a serious pest in the Midwest.

Adults of this complex are quite different in appearance but larvae are similar in general appearance, being typically C-shaped at rest and measuring from about 15 to 25 mm in length. They have a whitish-gray body, 3 pairs of legs, brown head and posterior end is always dark as a result of soil in the digestive tract. Larvae of the several destructive species can be identified by the arrangement of spines on posterior underside and shape of anal slit.

All species with one generation a year overwinter as nearly full grown grubs that migrate downward to stay below the frost line. They migrate to near the soil surface again to resume feeding on fibrous roots as the frost leaves the ground.

By By late May and early June larvae stop feeding, pupate in earthen cells and become adults in June and early July, depending on species.

Adults of some species feed on vegetation. Others depend on stored fat accumulated as grubs for source of energy. Daily or nightly flights are followed with periods of egg laying. Females burrow into moist soil to form an earthen cell in which she deposits a single egg. As the eggs hatch small larvae start feeding on fibrous roots. By early fall they have generally molted twice to become third stage or final stage grubs. Grass damage becomes evident as the larger larvae feed vigorously near the soil surface for 4 to 6 weeks preparatory to hibernation.

Turf damage with these insects also begins with yellowing of the grass followed by thinning and small dead patches that coalesce. As root pruning continues the surface may become spongy and the turf may be rolled back like a rug. Serious damage occurs both in the fall and in the spring. Secondary damage more serious than grub damage often occurs by skunks and other mammals tearing up the turf in searching for grubs to feed on.

Control. Control of these grubs with chlorinated hydrocarbon insecticides (chlordane, dieldrin, aldrin, heptachlor) is one of the most effective insect control measures known. But these materials are no longer available. Also grubs have developed resistance to these materials in many areas. However, at sites where one of these materials was applied within the last 5-6 years and where resistance has not developed, turf protection is still being provided. I personally know of one situation where dieldrin was applied in 1961 at 3 lb./acre rate. There is an annual infestation of adults from adjacent fields but still there is no evidence of grub damage because the 1961 treatment is still effective killing

young grubs as they start to feed.

We must now resort to organophosphate insecticides which are much less dependable. Diazinon, chlorpyrifos, ethoprop (Mocap^{R}), and trichlorfon (Dylox^{R}, Proxol^{R}) and fensulfothion (Dasanit^{R}), in Ohio only, are the approved materials. All require an annual application preferably applied in late summer to control small grubs during the period of warm soil temperatures, the ideal combination for optimum control.

Failures with organophosphates have been rather common as a result of their short residual life. Some of these failures are caused by a heavy thatch layer that binds the insecticides making them unavailable to the grubs, by periods of drought which forces grubs to move deeper into the soil to seek moisture thus removing them from the insecticide zone. The outlook for more effective insecticides appears discouraging since long residual chemicals are no longer acceptable.