annual, globe, cylindrical, and Texas nutsedges are also weed problems.

Herbicide recommendations are updated constantly; therefore, the reader should refer to the following publications for the latest recommendations: OH-05, OH-06, OH-07, and Circular 576. These may be obtained from your local County Agent's office. Immature weeds (seedlings) are most susceptible to herbicides, and certain turf varieties can be damaged when air temperatures exceed 80 to 85°F at the time of herbicide application. The turf should not be under moisture or mowing (scalping) stress when treated with a herbicide. Always read and follow all pesticide labels before use.

Currently, one of the most troublesome weeds in St. Augustinegrass is common bermudagrass. Seed from common bermudagrass is easily dispensed by birds, animals, wind, erosion, and humans. Control is a continuous, difficult chore. Spot spraying with glyphosate is the only effective method of controlling this weed. Regrowth quickly occurs from underground rhizomes and seeds, therefore, repeat applications are necessary. Many larger sod farms use an all-terrain vehicle (ATV) equipped with a spray tank to perform this spot-spraying.

Insect Control

Insect pests are generally grouped into three categories: shoot feeding, root feeding, and burrowing. Southern chinch bugs, spittlebugs, grass scales, and bermudagrass mites suck plant juices.

Chinch bug damage is normally associated with St. Augustinegrass. Chinch bugs have 3 generations per year in north Florida and 7 to 10 in south Florida. Damage is apparent as yellowish to brown patches in turf and appears sooner on turf under moisture and/or heat stress. The cultivars, Floralawn and Floratam, provide some degree of resistance to chinch bugs.

Insect shoot feeders which eat grass leaves include sod webworms and armyworms. Armyworms feed during the day, while sod webworms feed at night. Injured grass has notches chewed in leaves, and grass has an uneven appearance.

Root-feeding and burrowing insects include mole crickets, white grubs, and billbugs. Mole crickets injure the turf through their extensive tunneling which loosens soil, allowing desiccation to quickly occur. Mole crickets may be flushed out by applying water with 2 teaspoons of household soap per gallon per two square feet on fresh tunnels. If present, crickets will surface and die within several minutes. White grubs and billbugs are root feeders and are typically C-shaped. Grub damage is erratic with patches of turf first showing decline and then yellowing. Under severe infestation, sod may actually be removed by hand. Monitoring these insect populations involves cutting 3 sides of a sod piece and laying this back. If there is an average of three or more grubs per square foot in this sod an insecticide is needed.

Other insect pests which disrupt the sod surface or are a nuisance to man include ants, fleas, and ticks. For the latest insect control recommendations, refer to Extension Entomology Report # 51.

Disease Control

Disease development requires three simultaneous conditions: a virulent pathogen, a susceptible turfgrass, and favorable environmental conditions. Environmental conditions which favor incidence of most turf diseases include periods of high humidity, rain, heavy dews or fogs, and warm temperatures (but not always). Turf which is fast growing and succulent from nitrogen overfertilization is typically more susceptible to disease and other pest invasion. Ideally, irrigate early in the day to minimize the time in which turfgrass remains moist. Do not overfertilize with nitrogen. If a disease problem is suspected, prepare a sample for laboratory diagnosis. For these situations, do the following:

a) sample the affected area before fungicide application,

b) sample from marginal turf areas between diseased and healthy turf,

c) cut a 3- to 4-inch plug from each area with symptoms,

d) place these in paper bags or cardboard boxes and do not add water,

e) submit the sample to your nearest County Extension Office. Remember to complete a Specimen Data form with each sample.

Consult your county agent for control recommendations and follow all label recommendations.

Nematode Damage

Nematodes are small, microscopic worms which normally feed on or in plant roots. If populations become severe, plants wilt under moderate moisture stress, are slow to recover after rain or irrigation, and gradually decline or "melt out." Weeds that commonly become a problem in nematode infested areas include spotted spurge and Florida pusley. Turf roots often become stubby, shortened,