(Aquatic Weeds cont'd.)

Duckweed is difficult to kill especially because the tiny leaves have a waxy coating which makes it difficult for the herbicide to penetrate.

2) **Submersed** plants are usually, but not always, rooted to the bottom, and their stems and leaves may fill the water to the surface. These plants are commonly called moss, sea weed or water grass. They include many different species of pondweed such as coontail, milfoil, waterweed, naiad, waterstargrass, etc. Submersed plants have three distinct types of leaf attachments, namely: **whorled, opposite** and **alternate**. **Whorled** leaf attachments are those that have more than two leaves attached at the same point on the main stem. **Opposite** leaf attachments are those that have only two leaves attached at the same point on the main stem. **Alternate** leaf attachments are those that have one leaf attached singly at different heights on the stem. The leaves are in a staggered arrangement and they are never opposite each other. Examples of plants with **whorled** leaf attachments are: Horned Pondweed, Waterstargrass, Southern Naiad.

Plants with alternate leaf attachments having fine leaves include: Leafy Pondweed, Sago Pondweed, and Small Pondweed. Pondweeds with alternate leaf attachments and with broad floating leaves include: Floatingleaf Pondweed.

Problems encountered in obtaining a successful program of algae and aquatic weed control

To obtain satisfactory algae and weed control in any body of water it is essential to know the species and amount of algae and weeds that are present in the body of water. A moderate to heavy infestation of aquatic weeds in a body of water with any algae problem is an important consideration in determining the recommendation to be made for algae treatment, for aquatic weed treatment, or for both. The greater the aquatic weed infestation, the more essential it becomes to treat the water either for both algae and aquatic weeds or to increase the dosage used for algae control. Most of all registered algicides and aquatic herbicides are absorbed equally rapidly by algae and aquatic weeds. Therefore, a chemical added to a body of water which is heavily infested with weeds and algae and is being treeated only for algae, may fail entirely because much of the algicide is being absorbed and detoxified by the aquatic weeds. Other than the kinds of amounts of algae and weeds present, it is essential to know their location in the water and whether the algae and weeds are young and actively growing. All plants and algae are easier to kill in their earlier growing stage than when they are mature. Temperature of water is also important. Treat for algae and weeds in late spring or early summer after water temperatures have reached 62-65 degrees F and before the aquatic plants have gone to seed.

The physical condition of the water is equally important in assuring successful control of algae and plants. Muddy water rapidly deactivates most of the known algicides and aquatic herbicides. Therefore, never treat a pond after a rain when the water may be muddy. The chemicals will be rapidly deactivated and will not perform. Be sure not to stir up the shallow water with oars, paddles, motors, or other equipment.

Time of application especially for algae control is important. The best time of the day to treat for algae is in the middle of the day in a bright sun when the algae are growing rapidly. They are much easier to kill when in an active metabolic state. Postpone the treatment if conditions are not right. For Algae control it is usually necessary to treat more than once a season, followed by periodic spot treatment when new growth appears. Algae are better controlled if the algicide is applied directly on the algae. If a pond has filamentous algae concentrated primarily near the shore or on the bottom in the shallow areas, use the recommended amount of algicide to treat the entire pond but apply it only where the algae are growing. Never add algicide to clear algae free-water. It probably will be wasted.

Finally, if the weed and algae growth are moderate to heavy, don't treat the entire body of water at one time. Treat half of it one week and half a week or ten days later. This will insure that the dead weeds and algae will not rapidly and complete deplete the dissolved oxygen. A great number of fish kills result not from any toxic property of the chemical used but from a lack of oxygen caused by decaying dead algae and weeds.

Algae and aquatic weeds can usually be controlled satisfactorily in most bodies of water. To obtain satisfactory control, however, it is necessary to survey the body of water, to determine the kinds of weeds and algae present, the area, and the flow of water through the pond or lake. On the basis of this and other information a sound and successful treatment of the body of water can be made.

In conclusion:

The beautiful water hazards and scenic ponds located near well fertilized greens and fairways are prime targets for noxious algae growth and aquatic weeds. Lost golf balls in thick surface algae mats or in opaque, green waters represent a financial loss to disgruntled golfers and slows play. Foul odors emitted from decaying, unsightly algae can detract from the beauty of a course and the pleasures of the game. In addition, sprinkler irrigation systems hooked up to these ponds often become clogged and inoperative.

We now know that it is possible and economically feasible chemically to control algae and weeds in most golf course lagoons, lakes, and other waterways without adversely effecting humans, killing fish, or rendering the treated water unsuitable for irrigation purpose. Aquatic weeds and algae need not be tolerated.

Kentucky Bluegrass Lawn Quality

Adelphi, Fylking, Glade, Nugget, Rugby, Sydsport and Touchdown Kentucky bluegrasses have been evaluated by Agronomists R. J. Hull and C. R. Skogley at the University of Rhode Island. Carbon dioxide from the atmosphere is used by these lawngrasses to help promote root growth more than foliar growth. Increases in root development at the expense of leaf production result in higher quality turf that requires less frequent mowing.

Properties of lawngrasses, such as color of foliage, density of lawn cover, leaf blade angle and width, susceptibility to disease, preference by herbivorous insects and ability to recover from mechanical injury, are all recognized as influencing turf quality. Large clipping yields indicating stimulation of foliar growth are not beneficial in the long term maintenance of a high quality lawn. Frequent lawn mowing is also an unpleasant experience for most gardeners.

Thus, lawn care practices that avoid excessive stimulation of Kentucky bluegrasses, such as applications of too much water or fertilizer, increase prospects for a nicer looking more hardy lawn.