

AQUATICS THE CHEMICAL ANSWER

Water hazards on golf courses may be challenging for golfers and aesthetically pleasing — but water needs and algae that infest them have become an increasing problem for golf course superintendents.

Unsightly and smelly water weeds can cost golf courses money — and not only from golfers that are discouraged from playing the course. Water weeds that infest ponds and lakes used for irrigation can clog drainage and irrigation equipment.

There is also the danger of infesting turf with weed varieties transported in irrigation waters, according to Andy Price of Asgrow Florida Co., Plant City, Fla. There are a number of weed varieties that are adaptable to both aquatic and terrestrial environments, Price says.

Weeds in some golf course lakes have become so dense that divers in some parts of the country have refused to retrieve golf balls after isolated cases of diver fatalities when they became entangled in weeds.

Why is the problem of aquatic weeds and algae growing so rapidly

in the United States? No one claims to know — there are just some “educated guesses.” One theory offered by Chuck Carroll of Arizona Agri-Chemicals in Phoenix is that, once established, water weeds become increasingly prolific. Others believe aquatic weed growth is spurred by large amounts of fertilizer that is being used and washed into water bodies.

And, finally one authority claims, with all the construction being done that includes man-made bodies of water, more water is being exposed to sunlight. Sunlight hitting water begins the process of photosynthesis where energy from the sun is transferred into aquatic vegetation.

Whatever the source of aquatic weeds and algae, the problem simply stated, is how to control them. Experts who have studied the elimination of noxious aquatic vegetation have concluded chemical control is the most effective and economical method of control. The alternatives are mechanical and biological con-

trol. Mechanical “harvesting” of aquatic weeds is not economical in today’s labor market — and disposal of these weeds is usually a problem. Biological controls have not been a realistic solution. Most states ban the importation of “weed-eating” fish and aquatic mammals for fear these will upset nature’s delicate balance.

What must you do to control aquatic weeds with chemicals? The first step is to check into your state’s requirements regarding aquatic treatments with herbicides. Many states now require all applicators be licensed by the state. If this is the case in your state, consult a professional applicator.

In either case, you will then need to identify the types of weeds and algae that infest your lake or pond. A number of chemicals are used for controlling the myriad varieties of aquatic vegetation. Proper weed identification related to chemical selection is the key to effective kill.

Carroll in Arizona gives one

to page 36



AQUATICS THE CHEMICAL ANSWER from page 34

example of chemical compounds he recommends for the control of chara. Hydrothol-47 (a form of salt of endothall), mixed with a form of copper sulfate or chelated copper has given him the best results. This is due to the synergistic effect the chemicals have on one another, he said copper is effective against floating algae. Endothall formulations are most effective on general rooted aquatic weeds — particularly the hard-to-kill maturely rooted weeds. Coppers alone have not proven effective on the mature rooted weeds, he said.

Endothall, the primary active ingredient in Pennwalt's line of aquatic herbicides, is absorbed into the plant leaves and stems. The chemical disrupts the plant's vascular system which causes the plant to disintegrate and settle to the bottom of the lake.

After the proper chemical has been selected, the size of the body of water to be treated must be measured (depth and surface for total area). From the label, calculate the amount of chemical to use for the most effective kill. Keep in mind, when determining the amount of chemical to use, that the water pH (degree of acidity or alkalinity) may influence how complete the water weed kill will be. The higher the water's pH, the more chemical needed.

Read the label. Make sure the chemical you select is approved by the Environmental Protection Agency for use in your state — and for the body of water you plant to treat. Read carefully any warnings the label may contain. There is a danger of burning or other injuries.

Selection of the appropriate method of application is the next step in treating aquatic weeds. In smaller ponds, the usual method of application is with a power spray from the shoreline. However, this is not the most desirable method. Power spray equipment generally cannot reach the center of the pond where depth is usually the greatest and penetration most difficult.

In larger ponds and lakes, the most desirable method of appli-

cation is by boat. The agitation provided by power motors helps provide thorough mixing. Many courses have small aluminum boats kept just for that purpose. Small hoses trailing behind the boat beneath the water surface are a good method for applying liquid aquatic herbicides.

In areas where canals and other moving waters are a part of the landscape, aerial application is often used. Price, of Asgrow Florida, says that aerial application in canals and larger bodies of water is becoming an increasingly popular method of application in his area.

Many golf course maintenance men are specialists in turf care. But, as Price notes, the difference between treating turf and aquatic bodies of water is like day and night. One critical difference he singles out is turf herbicides usually percolate through sand and soil. Percolation usually nullifies any potential effect the chemical may have on the rest of the environment. However, when treating water, especially moving water, chemicals applied in a local stream or canal may very likely wind up in someone's tomato field.

Because of the wide-ranging effect aquatic herbicides can have on the environment, many golf course superintendents are turning to the professional applicator. Contracting the services of a professional frequently has economic advantages. Superintendents have found it is not profitable to invest in the equipment necessary to apply aquatic herbicides when the equipment often sits idle for months at a time. Most professional applicators will guarantee weed kill on a single price quote. This saves the golf course financial risk, if for whatever reason, the first application is not effective. Notwithstanding who applies the chemical, superintendents often have concerns about introducing chemicals into their water supply.

For example:

— How soon after the chemical is applied can the water be used for irrigation of turf? This answer lies in the selection of chemical. "With Pennwalt's endothall products," Carroll said, "the water can be used immediately after application for watering turf with no damage, when the chemical is applied according to label directions. However, it is advisable to let the water stand for 24

hours after application for the most effective weed kill."

— Will aquatic herbicides kill fish? Again, this depends upon the chemicals selected to do the job. Some chemicals, when used according to label directions, will not harm fish. Tolerances can be found on the label. But, in larger bodies of water, if it is necessary to use a chemical that might kill fish, this problem can be minimized by treating the lake in sections. The fish can then move to the untreated parts of the lake. Damage to fish may also depend on the species of fish; some are more susceptible than others. When in doubt, consult your local state fish and game agency.

Even after you have eliminated aquatic weeds from your pond or lake, your attention to this problem does not stop there. Most aquatic herbicides registered have no sterilizing effect on the soil. Weeds frequently begin to regrow soon after the chemical dissipates.

"Golf courses with 'enlightened' management often subscribe to a continuing maintenance program for controlling aquatic weeds and algae," Price said. "These courses have recognized that it is more economical to control aquatic weeds on a regularly scheduled program." This is because when the weeds are young it takes far less chemical to clear the pond than when they have been allowed to grow for a long period of time, he said. If they wait until the weed situation is intolerable, it takes large amounts of chemicals — or even two applications — to eliminate them.

How frequently should chemicals be applied in a comprehensive maintenance program? "Up until about two years ago, some ponds could be controlled with chemical applications spaced up to a year apart," Carroll said. "However, recently, the aquatic weed problem in the Arizona area has multiplied greatly and maintenance is needed anywhere from two weeks to three months."

The factors that will influence the frequency of application in a good maintenance program include: depth of the water (how much light is available for photosynthesis), water pH, how prolific is the variety of the weed and whether the water is stagnant or running. □