

Pest Management

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Choose the correct herbicide to control weeds in ponds

Weeds in ponds and lakes can be aesthetically unpleasant and interfere with human activities. There are several options for controlling pond weeds. These include taking preventive measures like proper site selection and pond management; mechanically removing them with weed commercial rakes, harvesters, or dredgers; implementing cultural practices such as reducing water levels; using a biological control agent like triploid grass carp; or using chemicals or herbicides.

The situation will determine the appropriate control strategy. For instance, mechanical or cultural practices may be used to clear smaller areas or new weed infestations. Grass carp may be used for long-term weed management with limited selectivity of vegetation controlled. However, using a combination of suitable techniques is often the most effective and environmentally safe way to control aquatic weeds.

Several herbicides can be used to manage aquatic weeds. Choosing a herbicide for this purpose would depend on such factors as the size and location of treatment area, time of the year, water use and movement, total versus selective control, and regulatory restrictions. The water's oxygen depletion, especially during the summer months, also should be taken into consideration. Using the appropriate herbicide at the correct time to prevent fish kill is another important consideration.

To simplify the decision-making process, it is useful to understand basic types of herbicides. Classification of aquatic herbicides may be based on herbicide activity and selectivity. Herbicides may be active at the site at which they come into contact with the plant (contact herbicide), or they may have to be absorbed by the plant and transported to different parts where they become active (systemic herbicide).

A contact herbicide will kill only exposed tissues or plant parts that come into physical contact with the herbicide. These herbicides usually act faster than systemic herbicides. Common examples of contact herbicides are diquat and endothall. Systemic herbicides, which move inside the plant to become active, usually will kill the entire plant

eventually. They act more slowly than contact herbicides. Common systemic herbicides include 2,4-D, glyphosate, and fluridone.

Herbicides capable of selectively controlling certain species of plants and not injuring others are called selective herbicides. A nonselective herbicide causes injury to all plants. Diquat and glyphosate are nonselective herbicides, and 2,4-D, endothall, and fluridone are selective herbicides.

Contact herbicides are effective to control annual weeds (weeds that take a year to complete the life cycle) and to treat shorelines, ramps, and small bodies of water where quick kill is desired and plant regrowth is not a concern. Systemic herbicides offer longer duration of weed control because they disrupt growth processes, leading to limited regeneration of treated weeds, especially perennial ones.

To be optimally effective, the herbicide should adequately cover the plant surface. Floating and emergent weeds can be controlled with a contact or systemic herbicide applied directly as a spray to the weed. However, submerged weeds are best controlled by a herbicide that will form a dilute solution and remain active after being applied to the pond. Limited or no water movement will be necessary for such treatments to be effective.

Aquatic herbicides are usually formulated as granules or liquids. Liquids are diluted with water and then applied with a sprayer or other equipment. Granular formulations can be applied by using a gloved hand, a scoop, or a fertilizer spreading bucket. Liquid formulations are more economical for large-scale treatments since they are more concentrated. Granules are more effective for deep (4 feet or more) ponds and smaller treated areas. Directions for dilution and application are stated clearly on the labels.

The herbicide has to be labeled and registered for the intended use. The product label should display the Environmental Protection Agency registration number. The intended uses will be stated under "General Information" on the label. To make an informed decision, a person has to carefully consider any restrictions given on the label.

Other precautions on handling, storage, and disposal may need to be considered also.

The stage of application is another important factor. Usually, herbicides work better when applied to young, actively growing weeds. But some systemic herbicides like glyphosate are more effective when applied later in the growing season to facilitate better movement to the underground organs.

Finally, the herbicide of choice should control the weeds without causing much injury to the desirable vegetation. Selective weed control can be the most challenging predicament for people trying to manage aquatic weeds. This will depend primarily on the flora and fauna of the pond. The label of a given herbicide carries a list of weeds it controls fully or partially.

Several resources are available on the Internet to help you identify herbicides effective for a given pond weed. The Web sites of North Carolina State University (www.cropsci.ncsu.edu/aquaticweeds/) and Ohio State University (ohioline.osu.edu/b374/) include herbicide efficacy ratings and control recommendations for common aquatic weeds.

The Southern Regional Aquaculture Center also has a fact sheet (number 361) explaining the response of common aquatic weeds to herbicides. For a copy, check the Internet (www.aquanic.org/publicat/usda_rac/efs/srac.htm) or contact either of us at PO Box 6108, Morgantown, WV 26506-6108; telephone, 304-293-6131.