News Column
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Aquatic Weed Control for Farm Ponds

Aquatic plants have adapted to thrive in diverse habitats. Aquatic plants are natural parts of the aquatic ecosystem, used by many different animals as food or shelter. When aquatic plants become a nuisance and interfere with planned water uses, then management and control is necessary. When this occurs, the plants are considered weeds and a control method should be selected. All vegetation is not bad. A certain amount is needed for good fish growth and protection.

Follow these steps in aquatic plant control:

1) Identify the problem plant (algae, floating, emergent, or submersed)
2) Choose control method (preventative, biological, mechanical, cultural, chemical)
3) If use chemicals, select the proper chemical from those listed
4) Calculate the pond volume
5) Follow label instructions

The Problem Plants
Plankton algae produce most of the dissolved oxygen in a pond and are essential to fish survival. In the presence of sunlight, green plants release oxygen as a by-product of photosynthesis. At night, plants and other pond organisms consume oxygen. Filamentous algae (pond moss) is a common weed in ponds. Floating weeds float in or near the surface of the water and obtain their nutrients from the water rather than from the soil. Duckweed and water meal are examples of common floating weeds. Emergent weeds are rooted to the pond bottom, but have stems, leaves and flowers that extend above the water surface. They primarily grow on the shoreline and extend into shallow water. Common emergent weeds are cattails and rushes. The submerged aquatic weeds grow under and up to the water's surface. Most submersed weeds have flowers and seed heads that extend above the surface of the water. Examples of submerged weeds include coontail, pondweed, and water milfoil. For assistance in aquatic plant identification and pond management Texas AgriLife Extension has a great web site at http://aquaplant.tamu.edu/

Preventive Methods
It is easier and less costly to prevent weeds problems than it is to control them once they develop. Careful pond site selection, proper pond construction, and watershed practices are the first steps in preventing aquatic weed problems. Edges of new and existing ponds should be deepened so shallow water areas are minimized. Some plants can be controlled by decreasing the water levels and exposing the shallow areas to freezing temperatures and drying conditions.

Biological Control
The grass carp is a practical and economical way to control certain types of pond weeds. Grass carp effectively control submerged weeds with tender succulent vegetation. The current stocking recommendation is 10-15 per surface acre if half of the area is covered with vegetation. Stock at least 10-12" grass carp to avoid predation from bass. If complete control occurs, you may experience intense plankton algae populations. Although grass carp will not reproduce in Kansas ponds, they can eat more vegetation than you want removed from the pond. A fish toxicant is now available to reduce grass carp numbers.

Cultural Control
Altering the environment can be used to manage aquatic weeds. For example, you may line the shoreline with rocks or other riprap to prevent erosion and the establishment of aquatic weeds. Winter drawdowns controls many submersed and rooted floating weeds. Covering the bottom sediments with black plastic can control submersed weeds on a small scale. Nontoxic dyes which act as light screens inhibit submersed plant growth.

Chemical Control
Chemicals are registered for specific uses. Read and follow label directions. Most aquatic herbicides will not harm fish if applied according to directions. Best results are obtained if herbicides are applied when the vegetation begins to grow

(April or May). If applied after May or if the vegetation growth is heavy, only treat half of the pond. If the entire pond is treated at once, the decaying vegetation will deplete the dissolved oxygen resulting in a fish kill.

Response of common aquatic weeds to herbicides

	Aquatic Herbicides					
Aquatic group and weed	**copper complexes copper sulfate**	**2, 4-D***	**diquat***	**endothall***	**fluridone**	**glyphosate**
Algae						
planktonic	E	P	P	P	P	P
filamentous	E	P	E	G (hydrothal)	P	P
chara (musk grass, musk weed)	E	P	G	G (hydrothal)	P	P
nitella	E	P	G	G (hydrothal)	P	P
Floating Plants						
bladderwort	P	G (granular)	E		E	
duckweeds	P	G (LV Ester)	G	P	E	
water hyacinth	P	E	E		P	G
watermeal	P	P	P-F		F-G	
Emergent Plants						
American lotus	P	E	P	P	F	G
arrowhead	P	E	G	G		E
cattails	P	G	G	P	F	E
water lily	P	E	P		E	E
sedges and rushes	P	F	F		P	G
smartweed	P	E	F		F	E
water primrose	P	E	F	P	F	E
willows	P	E	F		P	E
Submersed Plants						
broadleaf water milfoil	P		E	E	E	P
coontail	P	G	E	E	E	P
elodea	P		E	F	E	P
eurasian water milfoil	P	E	E	E	E	P
naiads	P	F	E	E	E	P
pondweeds	P	P	G	E	E	P

* Livestock Drinking Restrictions
E = Excellent Control: G = Good Control; F = Fair Control; P = Poor Control

Labels change periodically. Read and follow label instructions and observe water use restrictions.

Written by Charles Lee, K-State Research & Extension Wildlife Specialist.