

Table 1: Comparison of Highest Pesticide Concentrations Detected at Golf Courses with Water Quality Criteria (All concentrations in parts per billion)

CHEMICAL	Proposed for Use at Meeting House Golf Club	HIGHEST CONCENTRATION DETECTED ¹		LOWEST CONCENTRATION AFFECTING AQUATIC LIFE ²			
		Surface Water	Ground Water	Conc.	Chemical Species	Effect	Organism
2,4-D	T	6.72	50.00	3.90	2,4-D acid	Tissue residue	Bony fishes
				25.00	2,4-D butyl ester	Abundance declined	American or virginia oyster
				10.00	2,4-D butyl ester	Mortality	Water celery, water milfoil, water weed
Acephate		19.00	8.80	113.00	same	feeding change	brook trout
Ametryn		0.06		<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Arsenic		7.00	126.00				
Atrazine		2.50	7.90	1.00	same	algae	photosynthesis change
				1.00	same	mosquitofish	mortality
				0.10	same	eelgrass	change in phsiological processes
Azadirachtin	T			<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Azoxystrobin Technical	T			<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Bentazon		2.40	120.00	<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Bromacil			0.85	<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Chlordane			7.20				
Chloroneb	T						
Chlorothalonil		1.14	0.38	2.00	same	histological	rainbow trout

Table 1: Comparison of Highest Pesticide Concentrations Detected at Golf Courses with Water Quality Criteria (All concentrations in parts per billion)

CHEMICAL	Proposed for Use at Meeting House Golf Club	HIGHEST CONCENTRATION DETECTED ¹		LOWEST CONCENTRATION AFFECTING AQUATIC LIFE ²			
		Surface Water	Ground Water	Conc.	Chemical Species	Effect	Organism
Chlorpyrifos	T	0.30	0.40	0.0056	same	USEPA saltwater chronic (4-day average) standard ³	
				0.0110	same	USEPA saltwater acute (1-hour average) standard ³	
				0.0410	same	USEPA freshwater chronic (4-hour average) standard ³	
				0.0830	same	USEPA freshwater acute (1-hour average) standard ³	
Cyfluthrin	T			<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Dacthal diacid			1.07	<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Diazinon		1.40	0.05	1.00	same	behavior change	crayfish
				0.30	same	mortality	water flea
				0.10	same	mortality	fathead minnow
Dicamba	T	0.26	1.90	3,900	same	mortality	scud
Dithiopyr	T			<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Diuron		1.40	4.60	<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Ethofumesate	T	0.65		<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Ethoprop		7.70		3,800	same	growth effect	diatom
Etridiazole	T			12,000	same	mortality	frog
Fenamiphos		0.13	0.71	<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
F. sulfone		0.36		<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
F. sulfoxide		3.20	0.79	<i>No data presented in Golf Course Management & Construction for this chemical.</i>			

Table 1: Comparison of Highest Pesticide Concentrations Detected at Golf Courses with Water Quality Criteria (All concentrations in parts per billion)

CHEMICAL	Proposed for Use at Meeting House Golf Club	HIGHEST CONCENTRATION DETECTED ¹		LOWEST CONCENTRATION AFFECTING AQUATIC LIFE ²			
		Surface Water	Ground Water	Conc.	Chemical Species	Effect	Organism
Fenarimol	T	0.24		<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Fenoxaprop-ethyl	T			100.00	Same	avoidace	rainbow trout
Flutolanil	T			<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Fosetyl-AL	T			<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Glufosinate-ammonium	T			<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Glyphosate		8.20		2.20	same	mortality	water flea
Halofenozide	T			<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Heptachlor epoxide			0.16	<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Imidacloprid	T			<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Iprodione	T	3.52	5.10	<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Isofenphos		0.05	1.17	<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Lindane		0.02		<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Malathion		0.21		0.0010	same	reproduction effect	green algae
				0.15	same	mortality	water flea
Mecoprop (MCP)	T	ND	ND	<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Metalaxyl		0.84		<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Methamidophos		1.10		<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Myclobutanil	T			<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Oryzalin		2.20		<i>No data presented in Golf Course Management & Construction for this chemical.</i>			

Table 1: Comparison of Highest Pesticide Concentrations Detected at Golf Courses with Water Quality Criteria (All concentrations in parts per billion)

CHEMICAL	Proposed for Use at Meeting House Golf Club	HIGHEST CONCENTRATION DETECTED ¹		LOWEST CONCENTRATION AFFECTING AQUATIC LIFE ²			
		Surface Water	Ground Water	Conc.	Chemical Species	Effect	Organism
PCNB	T	ND	ND	0.40	same	bioconcentration	Ide
Pendimethalin	T			<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Pronamide		1.00		>40,000	same	mortality	frog
Propamocarb	T			<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Propiconazole	T	0.85		<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Siduron	T		ND	<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Simazine		38.00	3.30	1.0	same	mortality	mosquitofish
Spinosad	T			<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
TCP		0.80	0.90	<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Thiophanate-methyl	T			3,200	same	mortality	rainbow trout
Triadimefon	T	4.70	0.39	<i>No data presented in Golf Course Management & Construction for this chemical.</i>			
Triclopyr		0.37		1,200	same	immobilization	water flea
Vinclozolin	T			<i>No data presented in Golf Course Management & Construction for this chemical.</i>			

1. Highest concentrations were presented in Cohen, S., A. Svrjcek, T. Durborow, and N.L. Barnes, 1997. GCSAA's Golf Course Water Quality Study, Golf Course Management, Nov 97. ND indicates pesticide was not detected. Blank space indicates pesticide was not analyzed in any of the 14 golf course studies reviewed by Cohen et al.
2. Pesticide concentrations affecting various organisms was presented in Balogh, J.C. and W.J. Walker, 1992. *Golf Course Management & Construction: Environmental Issues*, Lewis Publishers.
3. *Ambient water quality criteria for chlorpyrifos - 1986*, Office of Water, U.S. Environmental Protection Agency, Washington, D.C. 20460, EPA 440/5-86-005. The criteria are based upon concentrations that should not be exceeded more frequently than once every three years..