

CHEMICAL CONTROL OF VERONICA FILIFORMIS IN TURFGRASS

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There are numerous species of Veronica that infest turfgrasses. Veronica filiformis, commonly known as creeping speedwell, can be a severe problem because of its strong vegetative competition during spring and fall. Creeping speedwell is resistant to 2,4-D, and has varying degrees of resistance to other turfgrass herbicides such as silvex, MCPP and dicamba. In the later 1950s, endothall was found to control creeping speedwell at a 1 pound per acre rate. Higher rates were too toxic to desirable grasses while lower rates were not 100% effective in controlling the weed.

Creeping speedwell was introduced into the United States as early as 1930 as a rock garden plant. Because it has an attractive blue flower, creeping speedwell was considered to be an acceptable ground cover. Most metropolitan areas in Michigan have some creeping speedwell; a major infestation is known to occur in Grand Rapids. However, due to disease problems, lack of wear, heat and drought tolerance, creeping speedwell is unacceptable during the summer periods. Its escape into adjacent lawns has caused serious, uncontrollable, but localized problems. Vegetative portions of the plant root quite easily and creeping speedwell spreads with each mowing.

Since creeping speedwell often assumes 80 to 90% of the soil surface area, chemical control measures for the pest must include methods to re-introduce desirable turfgrass species. Table 1 indicates the use of Dacthal (DCPA) and Round-Up (Glyphosate) in controlling creeping speedwell. Round-Up was effective in killing both desirable grasses and weed pest. Such a treatment would be useful where it is determined that enough desirable mature grasses do not exist and reseeding would be necessary. The wettable powder (wp) formulation of Dacthal exhibited an acceptable 83% control of creeping speedwell. R07-5145 is an experimental chemical growth retardant of turfgrasses which also selectively controls creeping speedwell. It has now been removed from consideration as a potential turf herbicide.

In Table 2, it is important to note the comparison between granular (G) and wettable powder (wp) formulation of Dacthal became important. The granular application was ineffective in controlling creeping speedwell. It thus is apparent that the Dacthal is absorbed primarily through the foliage of actively growing mature plants. Ronstar, an experimental pre-emergent crabgrass killer, was evaluated and found to have no effect on creeping speedwell control.

The treatments in Table 1 and 2 were applied in the late spring. In 1975 a plot area was treated in October. In Table 3 burn of the desirable species continued to be associated with R07-6145, and veronica control measured on December 1 was best with this chemical. The chemical growth retardant Maleic Hydrazide and Maintain were included in the study. Early effects indicated that Maintain may have some promise in creeping speedwell control.

However, in Table 4, ratings during the following spring indicated that Maintain was effective in altering vegetative growth and eliminating flowering only. Even though Dacthal showed few effects in controlling speedwell in the December rating, it received the best rating on the following April 20. This indicates that much of the kill occurred over the winter. Maleic hydrozide appeared to be effective in stunting the desirable grasses and allowing for better

creeping speedwell growth than the check plot.

It was concluded that Dacthal is the best control of creeping speedwell both in spring and fall treatments. The application rate is the same as recommended for pre-emergent crabgrass control. Granular formulations are not effective in killing veronica. It would appear that if creeping speedwell is actively growing at the proper time for pre-emergent crabgrass control, that both can be controlled with a single application. On the other hand, late fall applications have the advantage of killing veronica when the grass is not in use. Thus membership or clients are never aware of a sudden, major loss of ground cover.

When using Dacthal to control creeping speedwell, over one month is usually required for symptoms to appear. The "yellowing" often associated with dying weeds is not present. The weed simply begins to fade from view. The use of Dacthal for speedwell control is advantageous because it prevents annual grasses and weeds from germinating. However, satisfactory population of mature turfgrasses must be present that can be stimulated with fertilizer to fill in void areas. Dacthal is not acceptable where turfgrass re-establishment must be done through re-seeding. Where re-establishment is done through re-seeding, Round-Up should be used at the rate of 2 lb. A.I./A for creeping speedwell control.

Table 1: The Effect of a June 5, 1974 Application of Herbicides on Turfgrass Quality and Veronica filiformis control.

Chemical	Form	AE/ACRE	Turfgrass Quality Rating (9 best - 1 poorest)		Veronica Control (% kill)	
			Jul 11	Aug 24	Jul 11	Aug 24
DCPA	75wp	12 lb	9.0 c	5.0 b	67 a	83 a
DCPA	6F	12 lb	8.3 c	4.7 b	70 a	77 a
R07-6145	80wp	8 lb	6.3 b	4.3 b	93 b	97 b
Glyphosate	3EC	2 lb	1.0 a	1.0 a	100 c	100 b
Check			5.0 **	3.3 **	0 **	0 **

* Means within vertical columns having same letter are not significantly different at the 5% level according to Duncan's Multiple Range Test.

** Not true replications therefore no statistical analysis given.

Table 2: The Effect of a June 14, 1975 Application of Herbicides on Turfgrass Quality and Veronica filiformis Control.

Chemical	Form	AE/ACRE	Turfgrass Quality Rating (9 best - 1 poorest)		Veronica Control (% kill) Sept 8	Veronica Control (rating, (1-9; 1-best) April 20, 1976
			Jul 8 (burn)	Nov 6 cover)		
DCPA	75wp	10 lb	7.3 b*	6.7 d	71 b	2.7 ab
DCPA	5G	10 lb	7.3 b	4.3 abc	6 a	8.0 c
DCPA	6F	10 lb	6.7 ab	5.7 cd	78 b	1.3 a
DCPA	6F	6 lb	7.0 ab	4.7 bc	65 b	3.7 b
R07-6145	80 wp	3 lb	6.7 ab	7.0 d	80 b	1.3 a
R07-6145	80wp	6 lb	6.3 a	7.3 d	81 b	1.7 ab
Ronstar	2G	3 lb	6.3 b	3.0 ab	0 **	8.3 c
Check			6.3 b	2.7 a	0 **	7.0 c

* Means within vertical columns having the same letter are not significantly different at the 5% level according to Duncan's Multiple Range Test.

** Not included in statistical analysis.

Table 3: The effect of an October 16, 1975 application of herbicides on turfgrass quality and Veronica filiformis control

Chemical	Form	AE/ACRE	Turfgrass Quality (1-9; 1-best)		Veronica control (1-9; 1-best) Dec 1, 75
			Nov 6 (burn)		
DCPA	75wp	6 lb	4.0 a*		3.7 ab
DCPA	75wp	12 lb	4.0 a		5.0 c
DCPA	6F	12 lb	3.3 a		4.7 bc
R07-6145	80wp	3 lb	5.3 b		3.3 a
R07-6145	80wp	6 lb	6.0 b		3.7 ab
MH-30	3EC	3 lb	5.0 b		8.3 d
Maintain	1EC	1 lb	5.3 b		3.7 ab
Check	-	-	4.0 a		8.7 d

* Values having the same letter within vertical columns are not significant at the 5% level (DMRT).

Table 4: The effect of an October 16, 1975 application of herbicides on flowering and vegetation control of Veronica filiformis.

Chemical	Form	AE/ACRE	Veronica control rating (1-9;1-best) April 20, 1976	
			Flowering	Vegetation
DCPA	75wp	6 1b	1.0 a*	1.7 a
DCPA	75wp	12 1b	1.0 a	1.0 a
DCPA	6F	12 1b	1.0 a	1.0 a
R07-6145	80wp	3 1b	1.7 a	4.0 b
R07-6145	80wp	6 1b	1.0 a	2.7 ab
MH-30	3EC	3 1b	8.0 b	9.0 d
Maintain	1EC	1 1b	2.0 a	6.0 c
Check	-	-	8.3 b	8.7 d

* Values having the same letter within vertical columns are not significant at the 5% level (DMRT).