

## Effects of herbicide\*, tillage, and grass seeding on wild chervil (*Anthriscus sylvestris*)

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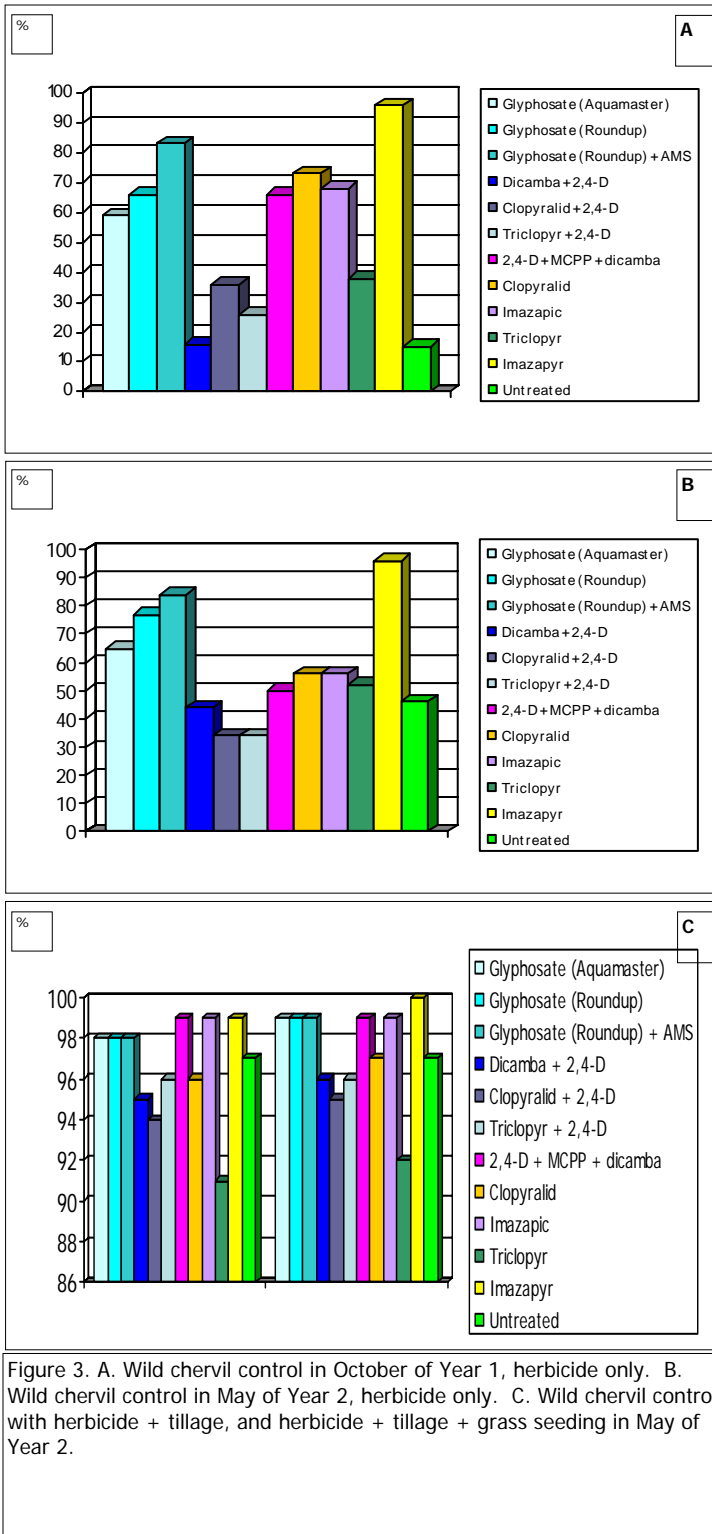


Figure 3. A. Wild chervil control in October of Year 1, herbicide only. B. Wild chervil control in May of Year 2, herbicide only. C. Wild chervil control with herbicide + tillage, and herbicide + tillage + grass seeding in May of Year 2.

### Introduction

Wild chervil (*Anthriscus sylvestris* (L.) Hoffmann) is a biennial or short-lived perennial weed species in the plant family Apiaceae (Figure 2). Although it is declared a Class B noxious weed in Washington state, recommendations for managing the species were based exclusively on anecdotal reports of control efforts. In order to develop research-based management recommendations for integrated control of wild chervil, a two-year study was designed using combinations of herbicide, tillage, and grass seeding.

### Materials and Methods

The trial was conducted on a portion of the Black River Unit of Nisqually National Wildlife Refuge south of Olympia, WA that was heavily infested with wild chervil (Figure 1). The experiment was conducted in 2003-04 and repeated in 2004-05. Wild chervil was clipped with a sickle-bar mower in early summer of Year 1 and re-growth treated with one of eleven formulated herbicides (eight active ingredients) when plants were in early flower and about 60 to 80 cm tall (approximately 1 month after mowing). Plots in the two iterations were treated July 2, 2003 and May 25, 2004. A CO<sub>2</sub>-pressurized backpack sprayer with a 5-nozzle boom was used to apply treatments both years. About one week after treatment, half of each plot was tilled using a tractor-mounted rotovator. In mid-September of Year 1, half of each tilled split-plot was seeded by hand with a blend of perennial ryegrass, orchardgrass, and tall fescue. Seed was then shallowly raked into the soil using a standard garden rake. Percent wild chervil control was visually evaluated at about 2 weeks after treatment, about 2 months after treatment (MAT), about 6 MAT, and about 9 MAT. Quadrats (30 x 50 cm) were placed in each split plot (corresponding to herbicide only, herbicide + tillage, and herbicide + tillage + grass seeding) about 12 MAT and all vegetation clipped by hand at 2.5 cm above the soil line. Foliage was sorted into three categories (wild chervil, other broadleaf weeds, and grass), placed in a 50 C drier for 3 days, and weighed.

\* *Thurston County does not recommend the use of 2,4-D, Banvel, or MCPP for the control of wild chervil*

## Results

Tillage provided the most effective wild chervil control in both two-year trials, averaging 97% among all treatments by about 6 MAT, compared to 49% control in non-tilled plots (Figure 3). The only treatments resulting in less than 20% wild chervil cover in non-tilled plots at 9 MAT were glyphosate + ammonium sulfate or imazapyr. While grass seeding did not significantly affect wild chervil dry biomass at about 12 MAT, it increased grass biomass from 200 kg/ha in tilled-only plots to 1575 kg/ha in tilled and seeded plots, compared to 428 kg/ha in non-tilled, non-seeded plots (Table). It appears that tillage and seeding of grass species provides excellent control of wild chervil, with or without additional herbicide application. In areas where tillage is not possible, imazapyr or glyphosate + ammonium sulfate provide satisfactory control.



Figure 2. A. Wild chervil has lacy foliage, and often begins to bloom at about 30 to 50 cm tall. B. White flowers are borne in umbels 5 to 7 cm wide, and are followed by slender fruits turning from green to black.

Table. Biomass of wild chervil, other weeds, and grass the spring following herbicide treatment, tillage, and/or grass seeding.

Treatment	Trade name	Rate	Biomass (dry weight)								
			Herbicide only			Herbicide + tillage			Herbicide + tillage + grass		
			Chervil	Other	Grass	Chervil	Other	Grass	Chervil	Other	Grass
		Product/a	kg/ha	kg/ha	kg/ha	kg/ha	kg/ha	kg/ha	kg/ha	kg/ha	kg/ha
Glyphosate + nis	Aquamaster + nis	4.8 pt + 0.25%	4708	209	92	317	1458	88	71	309	1978
Glyphosate	Roundup	6 pt	2578	113	15	277	861	535	147	342	1616
Glyphosate + AMS	Roundup + AMS	6 pt + 2%	2473	716	94	163	1907	353	270	275	1833
Dicamba + 2,4-D	Weedmaster	4 pt	5177	85	589	551	1498	67	967	306	1085
2,4-D + MCPP + dicamba	Weed-B-Gon	6 pt	6100	133	2066	150	950	217	50	400	1567
Triclopyr	Garlon 3A	4 pt	2822	139	69	462	1459	109	238	95	1448
Triclopyr + 2,4-D	Crossbow	6 pt	7169	17	514	1802	1021	115	130	599	1590
Clopyralid	Transline	1 pt	4169	26	516	221	945	276	14	621	1677
Clopyralid + 2,4-D	Curtail	4 pt	4676	327	603	488	922	270	647	361	1257
Imazapic + mso	Plateau + mso	0.75 pt + 2 pt	5467	183	550	17	383	17	0	117	1633
Imazapyr + mso	Arsenal + mso	3 pt + 2 pt	1580	237	86	15	1687	30	0	94	1590
Untreated	---	---	3100	31	383	76	1671	68	288	912	1595

P values for wild chervil (treatment = 0.002, tillage = 0.001), for other weeds (treatment = 0.177, tillage = 0.0006) and for grass (treatment = 0.742, tillage = 0.005). "nis" is nonionic surfactant (R-11), "AMS" is ammonium sulfate, "mso" is methylated seed oil (SunIt II). Biomass collected approximately 12 MAT.