WILD CARROT

Daucus carota L.

BIENNIAL: Reproduces by seed

A September germinated seedling with its three main divided segments.

The linear cotyledons of wild carrot.

A plant in the rosette stage in the fall having germinated in the spring.

The best approach for the long term management of wild carrot is to focus on eliminating seedling plants after they emerge in the fall or in the spring but also eliminating any first year rosette plants before they over-winter so as to stop plants from flowering and setting seed in the summer/early fall. Tillage with a moldboard plough is effective at eliminating rosette plants in the fall. Less soil disturbance will favour wild carrot and lead to control strategies that are more reliant on herbicides. Many grower have been unsatisfied with the control of glyphosate when a typical rate has been applied (0.9 kg/ha of active ingredient). Ontario research trials have demonstrated that increasing the rate of glyphosate will improve wild carrot control.

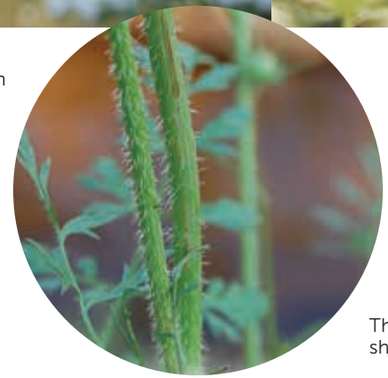
Comparing the average and range in control of wild carrot over a number of trials evaluated at eight weeks after the application of glyphosate at two rates.

PRODUCT (*active ingredient*)	**PRODUCT RATE/ACRE** (a.i.rate/ha)	**AVERAGE CONTROL (%)** (8 weeks after application)	**RANGE IN CONTROL (%)**	**NUMBER OF TRIALS**
GLYPHOSATE 360 g/L (*glyphosate*)	2 L/ac (1.8 kg/ha)	83	65-95	8
GLYPHOSATE 360 g/L (*glyphosate*)	1 L/ac (0.9 kg/ha)	65	54-98	8

Source: Dr. P.H. Sikkema, Dr. C.J. Swanton and F.J. Tardif, University of Guelph

The umbrella shaped and white flowering head taken in late July.

The curled up seed head, resembling a "bird's-nest".



The round stem with several short whisker like hairs.

WILD CARROT

An unsprayed area of a corn field with heavy wild carrot pressure.

Wild carrot control eight weeks after a post-emergence application of Peak.

Wild carrot control following a pre-plant application of glyphosate 360 g/L at 2 L/ac (right) compared to an unsprayed strip (left).

CORN

Control of wild carrot has been most consistent with a post-emergence application of Peak plus a non-ionic surfactant. Herbicides that are applied prior to corn emergence and to over-wintered wild carrot rosettes have generally been ineffective. In glyphosate tolerant corn tank-mixing Peak with glyphosate will provide better control of wild carrot than if glyphosate was applied alone.

BEST HERBICIDE OPTIONS

CORN

Applications made prior to crop emergence **(pre-emergence)** but to emerged wild carrot.

PRODUCT (*active ingredient*)	**PRODUCT RATE/ACRE** (a.i.rate/ha)	**AVERAGE CONTROL (%)** (8 weeks after application)	**RANGE IN CONTROL (%)**	**NUMBER OF TRIALS**
INTEGRITY + MARKMAN (*saflufenacil/dimethenamid-p*) + (*dicamba/atrazine*)	445 mL/ac + 1 L/ac (735 g/ha) + (1 kg/ha)	76	45-98	4
CALLISTO + AATREX LIQUID 480 (*mesotrione + atrazine*)	120 mL/ac + 850 mL/ac (140 g/ha + 1 kg/ha)	64	55-76	4
CONVERGE XT (*isoxaflutole + atrazine*)	174 mL/ac + 0.88 L/ac (105 kg/ha + 1.063 kg/ha)	62	56-68	4
INTEGRITY (*saflufenacil/dimethenamid-p*)	445 mL/ac (735 g/ha)	62	48-78	4
MARKSMAN (*dicamba/atrazine*)	1.8 L/ac (1.8 kg/ha)	40	5-69	4
AATREX 480 (*atrazine*)	1.24 L/ac (1.49 kg/ha)	40	5-69	4
ENGENIA *or* XTENDIMAX (*dicamba*)	400 mL/ac ***or*** 680 mL/ac (0.6 kg/ha)	39	23-60	4

Source: Dr. P.H. Sikkema, University of Guelph (Ridgetown Campus)

CORN

Applications made to emerged weeds and crop **(post-emergence)**.

PRODUCT (*active ingredient*)	**PRODUCT RATE/ACRE** (a.i.rate/ha)	**AVERAGE CONTROL (%)** (8 weeks after application)	**RANGE IN CONTROL (%)**	**NUMBER OF TRIALS**
PEAK + non-ionic surfactant (*prosulfuron*)	5.3 g/ac + 0.2% v/v (710 g/ha)	99	98-100	3
DISTINCT + non-ionic surfactant + 28% UAN (*diflufenzopyr/dicamba*)	115 g/ac + 0.25% v/v + 1.25% v/v (0.2 kg/ha)	69	59-87	3
CALLISTO + AATREX 480 (*mesotrione + atrazine*)	85 mL/ac + 235 mL/ac (100 g/ha + 280 g/ha)	59	55-65	3
PARDNER + AATREX 480 (*bromoxynil + atrazine*)	400 mL/ac + 1.24 L/ac (280 g/ha + 1.49 kg/ha)	56	35-74	3
AATREX 480 + CROP OIL (*atrazine*)	1.24 L/ac + 1% v/v (1.49 kg/ha)	50	36-61	3
MARKSMAN (*dicamba/atrazine*)	1.8 L/ac (1.8 kg/ha)	47	31-60	3
ARMEZONE + AATREX 480 + ASSIST+ 28% UAN (*topramexone + atrazine*)	15 mL/ac + 420 mL/ac + 0.5% v/v + 1.25% v/v (12.5 g/ha + 500 g/ha)	46	31-73	3
ENGENIA *or* XTENDIMAX (*dicamba*)	400 mL/ac ***or*** 680 mL/ac (0.6 kg/ha)	37	24-60	3

Source: Dr. P.H. Sikkema, University of Guelph (Ridgetown Campus)

This photo shows a two-pass system in glyphosate tolerant soybean that is very effective on fields with heavy pressure of wild carrot. A pre-plant application of glyphosate 360 g/L at 2 L/ac was followed up with a post-emergent application of glyphosate + Classic. The unsprayed check is to the left of this two-pass treatment.

SOYBEANS

In fields with heavy wild carrot pressure, a two-pass strategy has provided the best level of control. A pre-plant application of glyphosate 360 g/L at 2 L/ac provides good early season control. Any later germinating seedlings or escaped rosettes can be controlled with a follow-up application of Classic in non-GMO soybeans or glyphosate + Classic in glyphosate tolerant soybeans.

BEST HERBICIDE OPTIONS

SOYBEANS

Applications made prior to planting **(pre-plant)** but to emerged Canada fleabane.

PRODUCT (*active ingredient*)	PRODUCT RATE/ACRE (a.i.rate/ha)	AVERAGE CONTROL (%) (8 weeks after application)	RANGE IN CONTROL (%)	NUMBER OF TRIALS
GLYPHOSATE 360 g/L (*glyphosate*)	1 L/ac (0.9 kg/ha)	76	60-98	3
Tank-mix partner with glyphosate				
+ CLASSIC (*chlorimuron-ethyl*)	+ 14 g/ac (9 g/ha)	84	71-98	3
GLYPHOSATE 360 g/L (*glyphosate*)	1 L/ac (0.9 kg/ha)	45	43-46	3
Tank-mix partners with glyphosate				
PURSUIT + non-ionic surfactant + 28% UAN	+ 168 mL/ac + 0.25% v/v + 0.8 L/ac	78	69-95	3
+ BROADSTRIKE RC (*flumtesulam*)	35 g/ac (70 g/ha)	71	46-91	3
+ FIRSTRATE (*chloransulam-methyl*)	17 g/ac (35 g/ha)	58	26-79	3

Source: Dr. P.H. Sikkema, University of Guelph (Ridgetown Campus)

SOYBEANS

Applications made to emerged weeds and crop **(post-emergence)**.

PRODUCT (*active ingredient*)	PRODUCT RATE/ACRE (a.i.rate/ha)	AVERAGE CONTROL (%) (6-8 weeks after application)	RANGE IN CONTROL (%)	NUMBER OF TRIALS
CLASSIC + non-ionic surfactant (*chlorimuron-ethyl*)	14 g/ac + 0.2% v/v (9 g/ha)	79	60-94	5
PURSUIT + non-ionic surfactant	126 mL/ac + 0.25% v/v + 0.8 L/ac	56	20-74	4
FIRSTRATE + non-ionic surfactant + 28% UAN	8.5 g/ac + 0.25% v/v + 0.25% v/v (17.5 g/ha)	52	18-75	5
CLEANSWEEP + 28% UAN (*imazethapyr + bentazon*)	126 mL/ac + 700 mL/ac + 0.8 mL/ac (75 g/ha + 840 g/ha)	48	25-66	5
BASAGRAN FORTE (*bentazon*)	900 mL/ac (1,080 g/ha)	27	0-65	5
PINNACLE SG + non-ionic surfactant (*thifensulfuron-methyl*)	4.8 g/ac + 0.1% v/v (6 g/ha)	13	3-24	5
REFLEX + TURBOCHARGE (*fomesafen*)	0.4 L/ac + 0.5% v/v (240 g/ha)	8	1-20	4
BLAZER (*acifluorfen*)	1 L/ac (600 g/ha)	6	0-19	4
Post-emergence herbicide options only for Roundup Ready, Enlist and Xtend Soybean cultivars				
GLYPHOSATE 360 g/L (*glyphosate*)	2 L/ac (1.8 kg/ha)	83	65-95	8
GLYPHOSATE 360 g/L (*glyphosate*)	1 L/ac (0.9 kg/ha)	65	54-98	8

Source: Dr. P.H. Sikkema, University of Guelph (Ridgetown Campus)

An unsprayed area of a wheat field with wild carrot pressure.

Peak + Pardner activity on wild carrot at two weeks after application. Sensitive plants are yellowed and stunted and will eventually parish.

CEREALS

Peak + Pardner has consistently controlled wild carrot the best, followed by Refine M. All other cereal herbicides do not adequately control this weed.

POST-CEREAL HARVEST

This is an excellent opportunity to stop escaped rosettes from flowering and setting seed, therefore breaking the reproductive cycle. Tillage with a moldboard plough followed by the seeding of an aggressive cover crop like cereal rye or oats are effective strategies to kill rosettes and stop new seedlings from germinating. Fall herbicide applications with glyphosate 360 g/L at 2 L/ac is also effective.

BEST HERBICIDE OPTIONS

CEREALS

Applications made to emerged weeds and winter wheat **(post-emergence)**.

PRODUCT (active ingredient)	**PRODUCT RATE/ACRE** (a.i.rate/ha)	**AVERAGE CONTROL (%)** (8 weeks after application)	**RANGE IN CONTROL (%)**	**NUMBER OF TRIALS**
PEAK + PARDNER + non-ionic surfactant (*prosulfuron + bromoxynil*)	5.3 g/ac + 0.2 L/ac + 0.2% v/v (10 g/ha + 140 g/ha)	88	79-95	7
REFINE M [REFINE SG + MCPA] + non-ionic surfactant (*thifensulfuron-methyl/ tribenuronmethyl + MCPA*)	12 g/ac + 0.45 L/ac + 0.2% v/v (15 g/ha + 0.55 kg/ha)	75	56-90	7
LONTREL 360 (*clopyralid*)	0.33 L/ac (213 g/ha)	73	40-94	7
INFINITY (*pyrasulfotole/bromoxynil*)	0.22 L/ac (0.2 kg/ha)	51	23-75	7
DICLORPROP-D (582 g/L) (*dichlorprop/2,4-D*)	0.7 L/ac (1.017 kg/ha)	48	23-75	7
MCPA ESTER (600 g/L) (*MCPA*)	0.56 L/ac (850 g/ha)	45	28-76	7
TROPHY [TROPHY A plus TROPHY B] (*fluroxypyr plus MCPA*)	0.24 L/ac + 0.45 L/ac (108 g/ha + 560 g/ha)	39	24-61	7
BUCTRIL M (560 g/L) (*bromoxynil/MCPA*)	0.4 L/ac (0.56 kg/ha)	28	21-34	7
2,4-D ESTER (660 g/L) (*2,4-D*)	0.52 L/ac (850 g/ha)	26	10-53	7

Source: Dr. P.H. Sikkema, University of Guelph (Ridgetown Campus)