

Ground Ivy Population Response to 2,4-D

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Objective

The objective was to document the range in response of ground ivy populations to 2,4-D application.

Rationale

Postemergence herbicidal control of ground ivy can be a very difficult job for both the homeowner and professional lawn care operator. There are not many herbicides labeled for the task, nor do they all give satisfactory results. Findings from a recent survey of professional lawn care operators suggest that populations of ground ivy behave differently when treated with herbicides. This inconsistent response may be a contributing factor as to why ground ivy is difficult to control. This study was done to ascertain the range in response of ground ivy populations to 2,4-D application.

How It Was Done

Three 4 inch diameter plugs of ground ivy were randomly sampled from a single population in 8 states of the U.S. and 1 province of Canada and sent back to the greenhouse in West Lafayette (Table 1). From each plug, the stolons were separated and planted into individual 7 inch diameter pots (5:3 soil:peat mix) and maintained in the greenhouse with daily irrigation. Ground ivy was grown under greenhouse conditions for at least 6 months prior to treatment. The 9 ground ivy populations were treated with 4 lbs ai/A 2,4-D (amine) using an air-pressurized spray chamber in a carrier volume of 4 gallons/1000 ft². Visual ratings of phytotoxicity on a scale of 0 to 100% with 0 and 100% being uninjured and dead, respectively, were taken every 5 days for 25 days total.

Results

Injury symptoms developed at different rates depending on the ground ivy population. Injury symptoms occurred very rapidly on the OH and CA populations that showed almost complete senescence by 15 DAT. Conversely, for the NE and NS populations the initial injury was not as severe and injury symptoms increased more gradually. The NE population showed only half as much injury at 25 DAT.

Though the ground ivy in this study were from different states, it suggests that ground ivy populations may vary in their 2,4-D susceptibility within a city, subdivision, or even neighboring lawns. This might help explain why ground ivy control is often difficult and inconsistent.

Table 1. Ground ivy population collection.

Population ID	Sampling Location	Location Description	Mowed (in)	Sunlight	Area (ft ²)	Irrigation
SD	Brookings, SD	Research plots	2.5	Full	400	Yes
TN	Eidson, TN	Home garden	N/A	Full	20	No
CA	Laytonville, CA	Nursery	N/A	Full	N/A	Yes
NS	Yarmouth, Nova Scotia	Home garden	N/A	Full	25	Yes
MI	Williamston, MI	Home lawn	2.5	Shade	1600	No
OH	Columbus, OH	Research plots	2.0	Shade	100	No
NE	Mead, NE	Home lawn	2.5	Full	250	Yes
IL1	Fox Lake, IL	Home lawn	3.0	Full	150	Yes
IL2	Fox Lake, IL	Home lawn	3.0	Shade	100	Yes

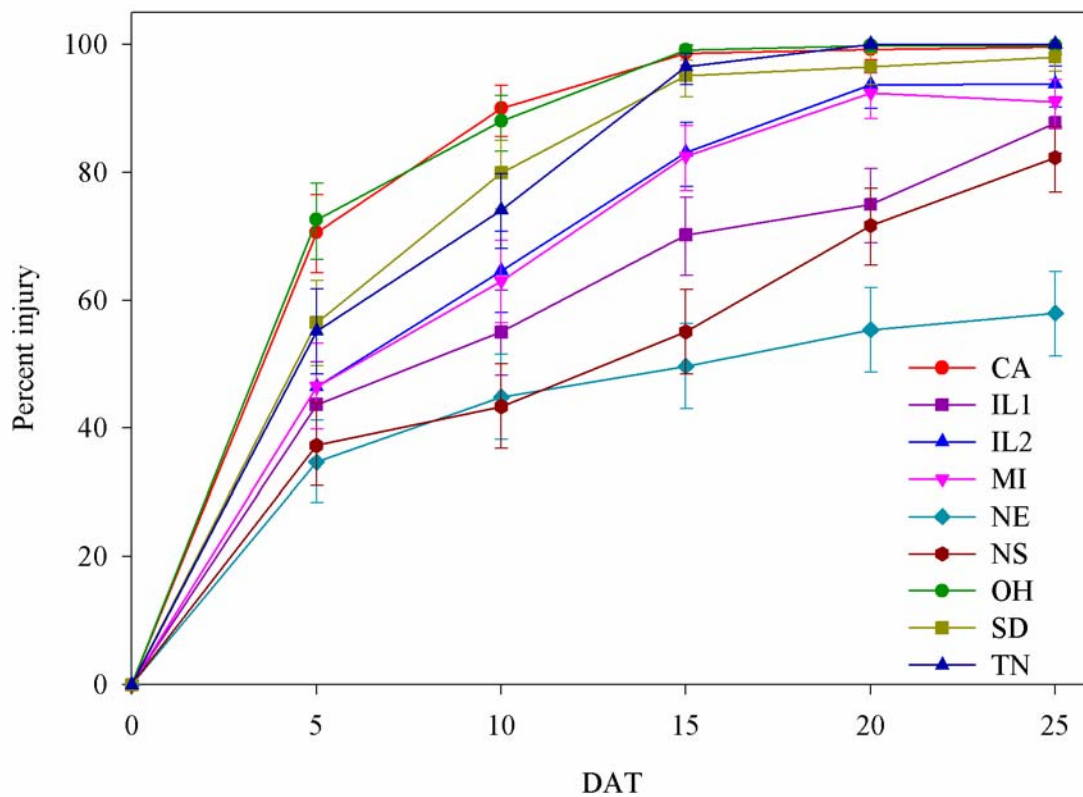


Figure 1. Injury to ground ivy populations after treatment with 4.0 lbs/A 2,4-D. Error bars equal one-half the least significant difference at probability level 0.05. Population means are significantly different where error bars do not overlap.