

Project Title: Effect of Auxinic Herbicides on Peppermint Tolerance

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Objective: To evaluate the mint tolerance to different auxinic herbicides

Results:

This is the third year of study which evaluates mint tolerance to different auxinic herbicides. The study was conducted in an established field of Black Mitchum peppermint, planted in the fall of 2000. The treatments included 3 application rates of Banvel, Tordon, Garlon, Stinger and Starane, and an untreated check. The herbicides were applied at 0.125, 0.25, and 0.5 lb ai/ac on May 22, 2006 when the crop was 5-10 inches tall. The treatments were applied using a CO₂ backpack sprayer with Teejet XR11002 nozzles in 20 GPA.

Crop injury was evaluated by visually assessing the degree of stunting and discoloration. Stunting and discoloration were minimal (<5%) in the treatments with Stinger. However, stunting was significant, and increased with rate, for all other herbicides. Except for the high rate of Banvel, stunting generally decreased as the season progressed. Nonetheless, the high rate of Banvel, Tordon and Starane still resulted in more than 10% stunting at nine weeks after application. Plants treated with Banvel and Tordon showed discoloration at nine weeks after application.

While visual injury symptoms were significant, the high rate of Tordon was the only treatment to negatively impact mint biomass. In turn, Tordon applied at the high rate produced the lowest oil yield. In general, mint plants treated with Banvel and Tordon had lower oil yield than other treatments. Garlon, Stinger and Starane did not affect mint oil yield.

Summary:

The mint generally had good tolerance to Banvel, Tordon, and Starane when applied at medium to low rates (0.125-0.25 lb ai/ac). The crop had excellent tolerance to Stinger and Garlon even at the high rate (0.5 lb ai/ac).

Table 1. Effects of Banvel, Tordon, Garlon, Stinger and Starane on mint injury, yield and oil content in 2006.

Trt No.	Treatment Name	Rate lb ai/ac	Crop injury (%)						Height cm	Biomass ton/ac	Oil yield lb/ac
			Stunting			Discoloration					
			6/5/06	6/19/06	7/25/06	6/5/06	6/19/06	7/25/06			
1	Banvel SGF	0.125	8.3	13.3	8.3	6.7	18.3	3.3	59.3	2.0	27.3
2	Banvel SGF	0.250	8.3	15.0	10.0	8.3	23.3	5.0	60.7	2.6	23.2
3	Banvel SGF	0.500	15.0	15.0	18.3	10.0	38.3	5.0	58.3	2.4	24.5
4	Tordon 22K	0.125	8.3	11.7	6.7	5.0	13.3	3.3	66.7	2.1	29.7
5	Tordon 22K	0.250	10.0	21.7	3.3	16.7	23.3	5.0	59.0	2.5	32.2
6	Tordon 22K	0.500	21.7	28.3	15.0	33.3	33.3	8.3	53.7	1.4	21.6
7	Garlon	0.125	8.3	6.7	5.0	5.0	8.3	0.0	64.3	2.6	30.8
8	Garlon	0.250	13.3	16.7	3.3	5.7	10.0	0.0	64.0	2.9	44.2
9	Garlon	0.500	23.3	40.0	6.7	16.7	8.3	0.0	54.7	3.0	41.0
10	Stinger	0.125	1.7	0.0	1.7	0.0	0.0	0.0	67.3	2.4	36.7
11	Stinger	0.250	1.7	1.7	1.7	0.0	1.7	0.0	75.7	3.1	43.0
12	Stinger	0.500	3.3	5.0	3.3	0.0	6.7	0.0	72.0	2.8	37.6
13	Starane	0.125	8.3	6.7	5.0	5.0	0.0	0.0	68.3	2.3	39.3
14	Starane	0.250	11.7	13.3	3.3	16.7	3.3	0.0	68.7	2.7	51.9
15	Starane	0.500	23.3	40.0	11.7	33.3	15.0	0.0	50.3	2.1	43.4
16	Untreated		0.0	0.0	0.0	0.0	0.0	0.0	77.0	2.6	42.1
LSD (P=.05)			8.04	8.83	6.21	6.25	8.95	2.08	8.9	0.66	18.4
CV			46.27	36.04	57.7	36.92	42.22	66.67	8.37	16.1	31.07
Treatment F			7.10	16.82	5.59	24.65	14.74	14.13	6.31	3.36	1.9
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0023	0.0656