CARROT HERBICIDE RESEARCH REPORT—2014

Robin Bellinder, Cornell University

The primary focus of the herbicide trial with carrots was to evaluate crop tolerance to four relatively new products to support possible registrations through IR-4. Trials are being conducted in several states on multiple specialty crops. The products are pyroxasulfone (Zidua), acetochlor (Harness), both caused injury and reduced yields in 2013 so rates were lowered in 2014, GWN-10293, and A16003. While pyroxasulfone and acetochlor are preemergence herbicides, similar in activity with Dual Magnum and Outlook, the GWN-10293 and A 16003 products have both preemergence and post-emergence activity and are potentially new classes of chemistries. Additionally, a second part of the trial focused on evaluating three post-emergence herbicides with the potential to control Lorox-resistant weds. Two rates of Blazer, Reflex, and GoalTender were applied at 3-4, 6-7, and 9-10 leaf stages.

The planting season was very difficult. The extremely cold weather through the end of March and into April led to virtually frozen soils early in the season. This led to difficulties with soil preparation for planting and also to non-uniform seeding with planters in the early crops, including carrots.

Results: The data have been divided into two tables, one for the preemergence herbicides and the second for the post-emergence treatments. All of the new preemergence herbicides (including Dual Magnum) caused initial stunting (Table 1). This was slowly reduced and although yields were not negatively affected, it did persist until harvest (8/4). The post-emergence applications of all three herbicides caused early necrosis however, this disappeared with both Blazer and Reflex but persisted longer with GoalTender (Table 2). The crops recovered in all treatments and yields, while slightly lower with the higher rates, were not significantly reduced.

Overall, it is unlikely that any of the four new herbicides will be safe enough for use in carrots, particularly in rainy conditions. There is a possibility that we might be able to get a Special Local Need (SLN) for post-emergence Reflex use however, this will require an additional IR-4 residue trial. This could therefore take several years.

While all of the products provided control on common broadleaf weeds (e.g. redroot pigweed, c. lambsquarters, h. galinsoga) there were heavy populations of wild buckwheat, PA smartweed and field pennycress which were poorly controlled.

Evaluating New Herbicides in Carrots, 2014 (Pre-emergence)

Trt No.	Treatment	Form	Rate	Growth Stage	Stunting 6/10	Stunting 6/25	Stunting 7/17	Stunting 8/1	YIELD lbs/120 ft²
1	Untreated Check				0	0	0	12	5.10
2	Handweeded Check				0	0	0	0	8.60
3	Lorox	50 DF	1 lb	PRE	8	0	0	7	6.50
4	Dual Magnum	7.62 EC	1 pt	PRE	27	0	5	0	8.60
5	Zidua	85 WG	1.1 oz	PRE	22	33	7	0	8.60
6	Harness	7 EC	9 oz	PRE	67	70	35	17	8.40
7	GWN-10293	50 WG	0.5 oz	PRE	27	0	13	13	6.90
8	A16003	1.67 L	2.5 oz	PRE	37	20	18	17	7.90

Evaluating New Herbicides in Carrots, 2014 (Post-emergence)

Trt No.	Treatment	Form	Rate	Growth Stage	Necrosis (%) 6/25	Stunting 7/25	Necrosis (%) 7/25	Stunting 8/1	Necrosis (%) 8/1	YIELD lbs/120 ft²
1	Untreated Check				0	0	0	12	0	5.1
2	Handweeded Check				0	0	0	0	0	8.6
3	Lorox	50DF	0.5 lb	PRE						
	Blazer	2 L	1.3 oz	PST	8	0	0	13	0	6.8
	NIS 0.25%			PST						
4	Lorox	50 DF	0.5 lb	PRE						
	Blazer	2 L	2 oz	PST	13	0	0	15	0	6.3
	NIS 0.25%			PST						
5	Lorox	50 DF	0.5 lb	PRE						
	Reflex	2 L	0.32 oz	PST	8	0	0	13	0	5.9
	NIS 0.25%			PST						
6	Lorox	50 DF	0.5 lb	PRE						
	Reflex	2 L	0.64 oz	PST	15	0	0	15	0	6
	NIS 0.25%			PST						
7	Lorox	50 DF	0.5 lb	PRE						
	GoalTender	4 F	1.3 oz	PST	10	17	8	15	8	8.3
	NIS 0.25%			PST						
8	Lorox	50 DF	0.5 lb	PRE	18	22	18	13	15	6.7
	GoalTender	4 F	2.6 oz	PST						
	NIS 0.25%			PST						