2018 Dual Magnum Evaluations on PlantTape™ Transplanted Lettuce

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Summary: Dual Magnum is being evaluated for use as a pre-transplant application for lettuce. Prior research, has shown it to be safe on traditional lettuce transplanting operations in which the transplants that are used are typically 30 days. This research project evaluated the use of Dual Magnum on lettuce planted with Plant Tape™ transplants which are smaller and younger, typically 14-18 days old at transplanting. Rates of 0.5 pint/A or higher were injurious to Plant Tape™ transplanted lettuce on this soil type. These results indicate that Plant Tape™ transplanted lettuce may be more sensitive to Dual Magnum than traditional transplanting and care needs to be taken to select the appropriate rate for use on light soils.

Methods: The trial was conducted in a commercial Romaine lettuce field near Chualar, CA. The soil type at the site was Chualar loam. The field had a good deal of residue from the prior crop which made planting conditions more challenging than normal. Romaine lettuce was planted with PlantTape™ July 20, 2018. Herbicide treatments were applied the day prior to transplanting on July 19. Materials were applied with a CO_2 backpack sprayer using a one-nozzle wand with an 8008EVS tip applying the equivalent of 76 gallons of water per acre. Plots were one 80-inch bed wide by 10 feet long and randomized in a complete block design with four replications. The field was sprinkler irrigated for the whole growth cycle. Weed counts were made on August 2 and on August 15. On August 15, each plot was hand weeded and the time to weed was recorded. Harvest evaluations were conducted on September 21 by harvesting and weighing 10 untrimmed plants from each plot.

Results: The August 2 evaluation was conducted before cultivation. All Dual Magnum treatments had fewer purslane plants and total weeds than Kerb and the untreated control (Table 1). Only Dual Magnum at 0.67 pint/A had measurable phytotoxicity on that day (Table 2). The August 15 evaluation date was conducted following cultivation. All Dual Magnum treatments except for 0.33 pint/A had fewer purslane and total weeds than Kerb and the untreated control. All Dual Magnum treatments had reduced weeding time than Kerb and the untreated control. Dual Magnum at 0.67 pints/A had unacceptable phytotoxicity on this date, and on September 6 Dual Magnum at 0.51 and 0.67 pint/A had unacceptable phytotoxicity. The yield data indicates reduced yield in the 0.51 and 0.67 pint/A treatments.

Table 1. Weed counts (No./m^2) and weeding time

Treatment	Rate/A	Aug 2				Aug 18				
		Shepherd's purse	Purslane	Other	Total Weeds	Shepherd's purse	Purslane	Other	Total Weeds	Weed Time hr/A
Dual Magnum	0.16 pint	2.2	11.6	1.6	15.3	2.5	9.7	0.9	13.1	9.8
Dual Magnum	0.33 pint	2.2	13.4	0.3	15.9	1.9	13.4	0.3	15.6	10.6
Dual Magnum	0.51 pint	2.2	10.0	0.9	13.1	0.9	8.1	1.3	10.3	7.8
Dual Magnum	0.67 pint	2.2	6.6	0.9	9.7	2.8	7.2	0.9	10.9	8.6
Kerb	1.90 pint	2.8	19.4	2.5	24.7	0.9	15.0	2.8	18.8	14.9
Untreated	---	4.4	19.4	2.8	26.6	2.5	13.4	1.3	17.2	13.4
P		0.4907	0.0750	0.3118	0.0087	0.2492	0.1047	0.2149	0.0912	0.0002
$LSD_{0.05}$		NS	NS	NS	7.4	NS	NS	NS	NS	2.6

Table 2. Phytotoxicity rating and yield evaluation (mean head weight)

Treatment	Rate/A	Phytotoxicity[1]			lbs/head
		Aug 2	Aug 15	Sept 6	Sept 21
Dual Magnum	0.16 pint	0.0	0.0	1.5	1.23
Dual Magnum	0.33 pint	0.0	0.1	1.5	1.30
Dual Magnum	0.51 pint	0.0	0.5	2.3	1.16
Dual Magnum	0.67 pint	0.3	2.5	2.3	1.06
Kerb	1.90 pint	0.0	0.0	0.5	1.22
Untreated	--	0.0	0.0	0.0	1.26
P		0.4509	<0.0001	0.0027	0.0009
$LSD_{0.05}$		NS	0.8	1.1	0.09

1 – scale: 0 = no crop damage to 10 = crop dead