Nonselective Broadleaf Weed Control
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Background/Objective: Demonstrate the fast burn symptomology capability and long term control of broadleaf weeds with MON 78365 and MON 78567. Compare symptomology to commercial Roundup Pro.

Site Information

Location:		William H. Daniel Research and Diagnostic Center, W. Lafayette, IN.
Soil Type:		Starks-Fincastle silt loam
Soil pH:		7.2
Soil Organic Matter (%):		
Turfgrass Species:		NA
Turf Condition:		NA
Turf Management:	**Mowing Height cm (in):**	6.35 (2.5)
	Fertilization:	None
	Irrigation:	To prevent moisture stress
Testing on Site Previous Year:		None
Target Pest:		*Trifolium repens* (white clover) and *Taraxacum officinale* (dandelion)
Growth Stage:		Mature

Application Information

Application Date:	7 June
Application Time:	9:00 AM
Air Temperature $C^{o}(F^{o})$:	19.8 (68)
Relative Humidity(%):	70
Wind Speed m s^{-1} (mph):	Calm
Soil Temperature(7.6 cm depth) $C^{o}(F^{o})$:	18.3 (65)
Soil Moisture:	Wet
Spray Volume L ha^{-1} (gal 1000 ft^{-2}):	932 (2.3)
Spray Pressure:	35psi
Spray Nozzle:	8001.5
Spray Equipment:	CO_2 backpack
Irrigation After Application:	None
Experimental Design:	Randomized complete block
Replications:	3
Plot Size m (ft):	1.5 X 3 (5 X 10)

Results

The effects of MON 78365, MON 78567, Roundup Pro+Scythe on white clover were seen one to two days earlier than the effects of Roundup Pro alone (Table 1). Though all four treatments resulted in damage to clover, only MON 78567 and Roundup Pro provided long term control of clover. It was difficult to determine if it was new germination of clover seeds in the soil or regrowth from plant parts responsible for the clover cover in August and September. However, it was most likely due to regrowth.

The effects of MON 78365, MON 78567, Roundup Pro+Scythe on dandelion were seen 10 days to one month sooner than Roundup Pro alone (Table 2). However, none of the treatments provided long term control of dandelion. Again it was difficult to determine if it was new germination of dandelion seeds in the soil or regrowth from plant parts responsible for the dandelion cover in August and September. The increased dandelion cover in the herbicide treated plots versus the check plots was due to lack of grass competition.

The two experimental products show promise in improving broadleaf weed control over that expected from Roundup. To help clarify the effects of regrowth and/or regermination, future treatments should include Gallery as well as traditional broadleaf herbicides (such as 2,4-D).

Table 1. Control of and percent cover by white clover after applications of non-selective herbicides.

Treatment	Rate of application	8 June	9 June	10 June	17 June	13 July	9 Aug	7 Sept
	lbs. a.e./A	---------- control[a] ----------					--- % cover[b] ---	
MON 78365	6.0	1.3	1.3	2.0	3.7	3.0	13.3	23.3
MON 78567	6.0	2.0	3.0	2.3	3.0	1.7	2.3	4.0
Roundup Pro dry	6.0	9.0	4.3	2.0	1.0	1.0	0.0	0.7
Roundup Pro dry + Scythe 1EC	6.0 12.0[c]	1.7	1.3	2.3	3.3	3.3	8.3	21.7
Check	---	9.0	9.0	9.0	9.0	9.0	15.0	28.3
LSD (0.05)		1.1	0.8	1.0	4.8	3.0	7.4	17.4

[a] Control of white clover was rated on a scale of 1 to 9, where 1 = complete control, and, 9 = no control.
[b] Percent of plot area covered by white clover.
[c] Rate of application was quarts/A.

Table 2. Control of and percent cover by dandelion after applications of non-selective herbicides.

Treatment	Rate of application	8 June	9 June	10 June	17 June	13 July	9 Aug	7 Sept
	lbs. a.e./A	---------- control[a] ----------					--- % cover[b] ---	
MON 78365	6.0	2.0	2.3	2.0	2.3	7.0	21.7	43.3
MON 78567	6.0	2.7	4.0	3.7	2.7	7.3	30.0	60.0
Roundup ProDry	6.0	8.7	8.0	8.0	6.7	2.0	21.7	60.0
Roundup ProDry	6.0	2.3	3.3	3.7	1.7	5.0	21.7	55.0
+ Scythe 1EC	12.0[c]							
Check	---	9.0	9.0	9.0	9.0	9.0	16.7	31.7
LSD (0.05)		1.2	2.0	1.5	1.3	3.7	NS	NS

[a] Control of dandelion was rated on a scale of 1 to 9, where 1 = complete control, and, 9 = no control.
[b] Percent of plot area covered by dandelion.
[c] Rate of application was quarts/A.