

Efficacy of a New Potassium Salt Formulation of Glyphosate (Roundup PROMAX) Compared to other Formulations of Glyphosate (Protocol #: 2008-01-A9-17)

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A field study was conducted at the Washington State University Turfgrass and Agronomy Research Center (TARC), in Pullman, WA, during the summer of 2008 to evaluate the efficacy of a new potassium salt formulation of Roundup against other formulations of Roundup. The research site was a thinned out stand of 'NuDestiny' Kentucky bluegrass with a number of broadleaf and grass weeds present. The weeds were: pigweed spp., prickly lettuce, common lambsquarter, pineappleweed, Canada thistle, Jim Hill mustard, field bindweed, common mallow, henbit, shepardspurse, witchgrass, and barnyardgrass. A spray application was made on 11 Aug 08 with a bicycle-wheeled CO₂ pressurized sprayer with 11008 flat fan spray nozzles at 80 GPA. At 3, 5, 7, 14, 28 and 56 DAT percent weed control was rated using a scale of 0-100%. Pictures were taken at each rating date. A randomized-complete block design was used with four replications and individual treatment plots were 6' x 10'.

There was no observed effect of any roundup treatment 3 DAT. However, all roundup treatments showed some chlorosis by 5 and 7 DAT (Figure 1 and 2). Weed control was not observed until 14 DAT with any of the glyphosate formulations (Table 1 and Figure 3). By this time all annual broadleaf and grass weeds were dead, as well as a significant amount of the Kentucky bluegrass. At 14, 28, and 56 DAT the potassium salt formulated glyphosate (MON 76207) resulted in significantly better weed control compared to the IPA salt formulated glyphosate (MON 54154). In addition, there was no significant difference in weed control 14, 28 or 56 DAT between MON 76207, the IPA salt formulated glyphosate (MON 77360), or the diammonium formulated glyphosate (MON 54155). No roundup formulation resulted in 100% control of the 'NuDestiny' Kentucky bluegrass at 56 DAT. It appears that additional applications would be required to achieve 100% control. Between 28 DAT and 56 DAT

additional weeds emerged (Figures 5-7). Pictures of each treatment in rep 1 were taken 5, 7, 14, 28, and 56 DAT; refer to Figures 1-7.

Table 1, The effect of different Roundup formulations on percent weed control of a stand of 'NuDestiny' Kentucky bluegrass with a number of broadleaf and grass weeds present.

Trt #	Product #	Glyphosate Formulation	Rate (qt/A)	Percent weed control (0-100%)					
				8/11/08 3 DAT	8/13/08 5 DAT	8/15/08 7 DAT	8/22/08 14 DAT	9/5/08 28 DAT	10/3/08 56 DAT
1	MON 76207	Mono Potassium	4.67	0	0	0	83.8 a*	91.8 a	93.8 a
2	MON 77360	IPA salt	7.0	0	0	0	77.5 ab	89.3 a	93.0 a
3	MON 54154	IPA salt	7.0	0	0	0	63.8 b	72.5 b	82.5 b
4	MON 54155	Diammonium	7.0	0	0	0	78.8 ab	81.8 ab	92.5 a
5	CHECK		0.0	0	0	0	0 c	0 c	0 c

*Values within a column followed by the same letter are not significantly different. LSD $P = 0.05$.

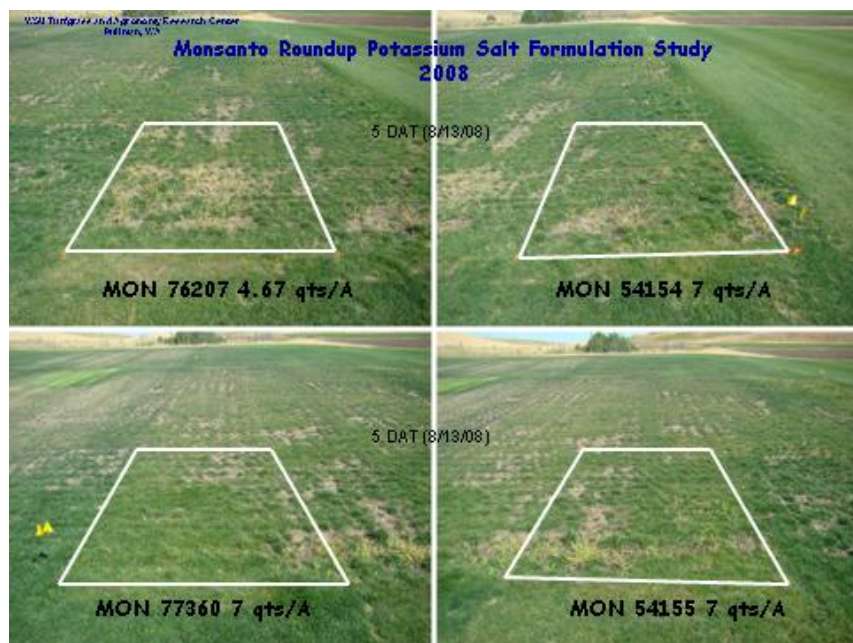


Figure 1. The effect of different roundup formulations 5 DAT.

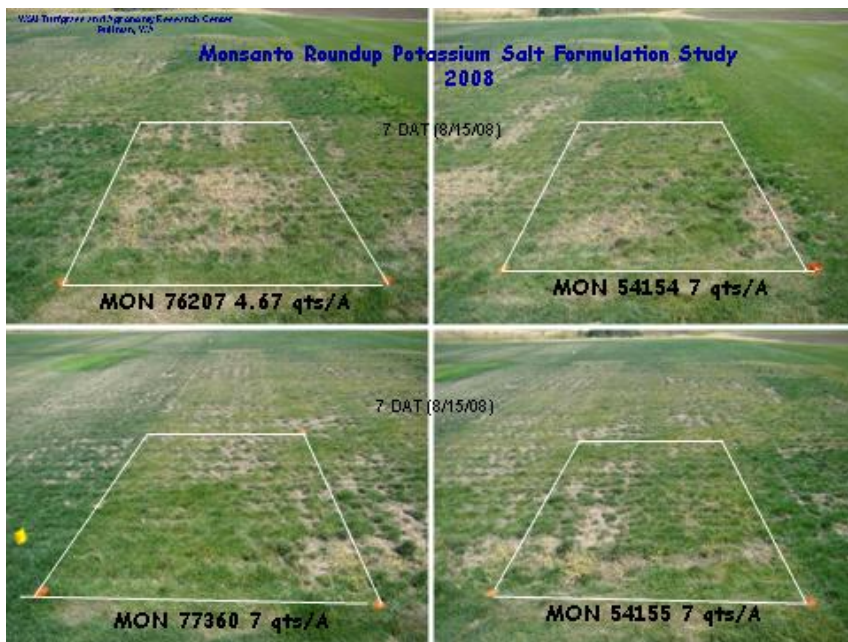


Figure 2. The effect of different roundup formulations 7 DAT.



Figure 3. The effect of different roundup formulations 14 DAT.



Figure 4. The effect of different roundup formulations 28 DAT.



Figure 5. The effect of different roundup formulations 56 DAT.



Figure 6. The effect of different roundup formulations 56 DAT.



Figure 7. The effect of different roundup formulations 56 DAT.