



Consumer 'Extended Weed Control' Products: Nothing is Foolproof!

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Every so often, an ornamental plant sample is brought into the diagnostic lab that strongly suggests herbicide injury. Usually it is difficult or impossible to track down what the cause is because the applicator either doesn't remember or denies that an herbicide was used. I have long a strong suspicion that many of these injuries are caused by inadvertent misuse of certain products available to homeowners. Even a casual observation of the pesticide section in a local box store or garden center will reveal a number of ready-to-use (RTU) products that offer postemergence weed control and additional 'extended control'. It is the herbicides in these pre-mixes that provide the extended control that can be easily misused, sometimes with disastrous results.

I recently had an opportunity to evaluate four of the extended control products on several established ornamental shrubs and trees. The study evaluated the products applied **directed to the base** of four tree and shrub species established for three years in the field. The treatments consisted of an application at the suggested labeled rate and at twice that rate. Care was taken to make the applications so that **minimal foliage was contacted**. The soil type is a Riverhead sandy

loam with 1–2% OM. The application was made at the end of the summer (Sept. 18, 2015). The ornamental species were: red maple (*Acer rubrum*), Japanese plum yew (*Cephalotaxus harringtonia* 'Fastigiata'), dwarf fothergilla (*Fothergilla gardenia*) and inkberry, (*Ilex glabra* 'Densa'). The plots were irrigated within four days of treatment after which the plants were left alone until the treatments were evaluated the following spring (June 10, 2016). The four products that were applied were either ready to use or a concentrate that was diluted according to the label instructions were:

Roundup Extended Control W&G Killer Plus Weed Preventer II (glyphosate 18%, diquat 0.73%, imazapyr 0.3%) (EPA Reg. No. 71995-40).

Ortho Groundclear Complete Vegetation Killer Concentrate (glyphosate 5%, imazapyr 0.08%) (EPA Reg. No.239-2657).

Bayer Advanced Durazone Concentrate W&G Killer (glyphosate 20%, diquat 0.9%, indaziflam 0.09%) (EPA Reg. No. 72155-100)

Spectracide Weed & Grass Extended Control (diquat dibromide 2.3%, oxyfluorfen 1.92% fluzifop-p-butyl 1.15%, dimethylamine salt of dicamba, 0.77%), (EPA Reg. No. 9688-8845).

It is the herbicides in these pre-mixes that provide the extended control that can be easily misused.

Table#1. Ornamental Plant Response to Directed Applications of 'Extended Weed Control' Products.

Treatment	Application Rate (9-18-15) Directed to base of plants	Percent injury June 10, 2016 (236 Days after Application)			
		red maple (<i>Acer rubrum</i>)	Japanese plum yew (<i>Cephalotaxus harringtonia</i> 'Fastigiata')	dwarf fothergilla (<i>Fothergilla gardenia</i>)	inkberry (<i>Ilex glabra</i> 'Densa')
Untreated	Untreated	0	5	0	0
Roundup Ext Ctr W&G Killer Plus Weed Prev II	Suggested labeled use rate (LUR)	0	10	7	0
Roundup Ext Ctr W&G Killer Plus Weed Prev II	Twice LUR	8	23	28	18
Bayer Adv. Durazone Conc W&G Killer	Suggested labeled use rate (LUR)	8	8	8	0
Bayer Adv. Durazone Conc W&G Killer	Twice LUR	0	8	27	0
Spectracide Weed & Grass Extended Control	Suggested labeled use rate (LUR)	8	13	8	7
Spectracide Weed & Grass Extended Control	Twice LUR	7	23	0	3
Ortho Goundclear Complete Veg Killer Conc	Suggested labeled use rate (LUR)	63	60	30	45
Ortho Goundclear Complete Veg Killer Conc	Twice LUR	77	57	70	53
	*Fisher's Protected LSD 0.05	14	27	28	19

*Numbers represent the average of 3 replications. Means within a column are that are greater than the LSD value are significantly different at p=0.0.

Results: the results of the treatments were very interesting. (See Table#1). Only one of the the four products caused serious injury to the ornamentals the spring following the application. Although all the plants were negatively affected by Ortho Groundclear, the most dramatic injury was to the red maple. The leaves were greatly miniaturized and the growing points were dead in many cases. It should be emphasized the the label instructions for Groundclear very clearly state that no applications should be made within twice the distance from the drip line of any tree or shrub. These

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results dramatically illustrate the need for that precaution. There was some visible injury from other treatments, especially at the higher rate, although it did not reach a level of statistical significance. The injury for Groundclear can be seen in Figure#1. The ingredient in the Groundclear that is responsible for the injury is imazapyr. This is a potent member of the imidazoline herbicide family. Once the injury is observed in the plant, it is unlikely that there will be significant recovery. Usually plant removal and replacement are necessary. These results indicate how easy it is to cause severe damage by not reading and following the product label instructions.

Figure 1. Top: untreated, Bottom: Groundclear 2X LUR (236 days after application). Notice: leaf distortion, stunting and inhibition of new bud growth.

