Iron: Herbicide alternative to weed control in lawns and landscapes
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Iron-Based Herbicides? Yes, Iron (Fe) can do an acceptable job of controlling many broadleaf weeds in a lawn. Most broadleaf herbicides contain 2,4-D, and/or Dicamba. These two products work great when used properly but can create problems if used incorrectly, especially near sensitive plants. Iron (Fe) on the other hand is a safer alternative that doesn't volatize or move once it's on the plant. Iron (Fe) products are commonly used to treat micronutrient deficiencies in plants and are mineral based materials. The Iron (Fe) products (trade names: Fiesta, Iron X, Natria, Ortho Elementals, are a few examples with many more on the market) used for weed control or deficiencies are bound to a chelating agent HEDTA or (hydroxyethylenediaminetriacetic acid) that keeps Iron (Fe) soluble and readily available for plant foliar uptake. In the chelated form, broadleaf weeds absorb FeHEDTA easier and in higher quantities than turf. Since iron adversely affects broadleaves more, Iron oxidation causes plant necrosis which in turn kills the weed (First the weed will dry up, then turn black and affected leaf tissue dies within hours of application.) and no damage occurs to the desired turf other than perhaps a darker green color.

Figure 1. Clover and dandelion showing leaf blackening and burn-down 2 days after treatment with no injury to Kentucky bluegrass (*left*) and untreated (*right*).

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So why isn't everyone using Iron products for broadleaf weed control? While they do work, in some cases they don't work great (not as good as conventional herbicides). In order for these products to be effective most labels, recommend repeat application because most broadleaf weed will grow after treatment. Given FeHEDTA is a contact and not systemic, (meaning it will only kill what it comes in contact with) the lower parts of the plant will continue to grow. Depending on the weeds you're trying to control, you may observe 2-10 weeks of control. The key to these products working is multiple applications at 3-4 weeks apart. Multiple applications work the best according to most labels and research that we have conducted. We are currently running trials at UNL looking at some of these alternative herbicides. Early results are showing acceptable levels of control on clover and dandelion from iron-based herbicides.

This certainly may not be the answer for everyone. To someone who is looking for a non-target safer alternative to some of the conventional herbicides or someone worried about what you might do to your susceptible plants or your neighbors it is definitely worth a try. Below are a couple helpful articles giving more in depth information on how to use Iron products and limited research on how they work on specific weeds.

https://extension.umd.edu/sites/extension.umd.edu/files/_docs/programs/ipmnet/Iron%20Herbicide%20Info-UMD-IPMnet.pdf

https://ecommons.cornell.edu/bitstream/handle/1813/42502/2012chinery-NYSIPM.pdf?sequence=1

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