New Herbicides for Broadleaf Weed Control

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New minimum-risk products offer turf pros new lawn treatment options

Several new herbicide active ingredients and combination products have been introduced to the market during the past few years. Perhaps most notable was Imprelis. However, sales of the product were suspended in August 2011 due to concerns about possible non-target injury on pines, spruces and other ornamental species. It is unclear at the time of this writing if, or when, Imprelis will again be made available for use on turfgrass.

Besides Imprelis, there have been many other herbicides introduced for broadleaf weed control in the past few years. In fact, the number of active ingredients registered for broadleaf weed control in turfgrass has doubled since the year 2000. This article is not meant to be an exhaustive review of all the herbicides you can use in turfgrass. Instead, the focus is on the newest of products, those that have been released in the past couple of years. You should always consult the label prior to use to verify that the product is safe for your type of turf.

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Fiesta herbicide applied three times in the spring resulted in excellent control of dandelion, white clover and ground ivy, and good control of broadleaf plantain as evident in these test plots. PHOTOS COURTESY OF DAVID GARDNER, PH.D.
Defendor herbicide

Defendor is a new herbicide from Dow AgroSciences that contains the active ingredient florasulam. This compound has been available in agriculture for a while but is new to turfgrass. Florasulam works well in cooler temperatures. It has a very low use rate compared to most other herbicides used in turfgrass. It’s available in a co-pack with Dimension 2EW. The intent is that Dimension and Defendor be applied together and this can either be with one application or with split applications about eight weeks apart.

Defendor can be used safely on all major turfgrasses and should be applied at typical preemergence crabgrass timing. To prevent dandelion flowering, application should be made prior to dandelion bloom. Weeds controlled include dandelion, white clover, common and mouse-ear chickweed, mustard and shepherd’s purse.

Because it is meant to go out with Dimension, the application is made considerably earlier than other broadleaf herbicides. However, florasulam results in very long lasting control. Research conducted at The Ohio State University shows that a single application of Defendor herbicide will give more than 90 percent control of both dandelion and white clover for 84 days. On plots receiving sequential applications control was still nearly 100 percent at 98 days after the initial application.

In certain parts of the country applicators are banned from using conventional pesticides on playing fields, lawns and playgrounds. These laws were enacted to minimize pesticide exposure to children and restrict the use of pesticides to minimal risk ingredients. The products mentioned below can in most cases be used on these areas. Of course, you must be familiar with the laws and regulations in the areas you make applications.
Fiesta herbicide

Fiesta herbicide contains a proprietary chelated iron that, when applied to turf, acts as a selective postemergence herbicide against a wide spectrum of broadleaf weeds. Control is rapid with nearly 100 percent burn down achieved often within 24 hours. Note that this is a contact herbicide. Research has been conducted at Ohio State University to determine if a program of sequential applications can be effective to achieve long-term weed control. We tested two applications in the fall, followed by two applications in the spring compared to three applications in the spring. At each of these times we applied 1.25, 2.5 or 5 gallons per 1,000 square feet of a 2, 4, or 8 percent solution (9 total rate/percentage combinations).

Our results suggest that three applications every 21 days in the spring provide better long-term control than two applications in the fall followed by two applications in the spring (this would be more cost-effective as well).

Our results also suggest that when using Fiesta to achieve long-term weed control, the total amount of Fiesta applied over a season is more important than the gallon per acre spray rate or percent concentration. In other words, control is a function of the amount of chelated iron applied and 2.5 gallons per 1,000 square feet of an 8 percent solution will result in control similar to 5 gallons per 1,000 square feet of a 4 percent solution.

Either of these rates applied three times in the spring resulted in excellent control of dandelion, white clover and ground ivy and good control of broadleaf plantain for up to 98 days (56 days after the last application was made). Since burn down is so rapid, the amount of control after three applications may actually be a little longer than with a traditional herbicide that might take up to 28 days to achieve control. Fiesta is labeled to control black medic, common
chickweed, dandelion, moss, algae, plantains, Shepard’s purse, thistles, veronica and white clover.

Fiesta is more expensive than a standard three-way herbicide. However, this product is legal to use in Canada, where there is a ban on pesticide use in turf and will be an important tool for turfgrass managers in locations in the United States that are under similar restrictions.

One last note, the main injury symptom is to turn affected plants black (actually ultra-dark green, but they look black). The chelated iron is very selective of broadleaf plants. However, it will cause some darkening of the turfgrass, which can look more like a blackening or phytotoxic response to the turfgrass. This can be greatly reduced or avoided if used in cooler temperatures, such as in the 60s or 70s. Application when temperatures are in the 80s or 90s may result in a noticeable and dramatic blackening of the turfgrass. This will go away after a few mowings, but can be visually striking.

In our tests, Kentucky bluegrass and perennial ryegrass were quite tolerant of Fiesta even when applied in warmer weather. Fine fescue turned noticeably darker in warmer weather, but this was almost more of a benefit than detraction. The tall fescue we tested was more susceptible. Again, this phytotoxicity issue may be avoided by applying in cooler temperatures.

Herbanatur’s A.D.I.O.S. performed well in fall trials at Ohio State, resulting in 100 percent weed control. Spring trials resulted in 60 percent control of dandelions and 80 to 90 percent control of ground ivy for two to three weeks.
A.D.I.O.S.

A.D.I.O.S. is an herbicide manufactured by Herbanatur and another recent addition for turfgrass managers. It’s a patented product used in Canada and also gaining popularity in those parts of the United States where application of conventional herbicides is not allowed. This product should not be confused with ADIOS, which is a cancelled formulation of DSMA or Adios from Arysta, which is a cotton defoliant.

The active ingredient of A.D.I.O.S. is sodium chloride, which is actually quite effective as a selective herbicide against broadleaf weeds such as dandelion, white clover and even ground ivy. Control is rapid, with considerable burning of the effected plant tissues within 24 hours.

In trials at Ohio State, A.D.I.O.S. performed very well when applied in the fall, resulting in up to 100 percent weed control. In our spring trials we are getting around 60 percent control of dandelion and 80 to 90 percent control of ground ivy for two to three weeks.

Some browning of the turfgrass may occur. This is more likely if the application is made in warmer weather. However, the injury goes away after about seven to 10 days. Of course, this could be minimized by using the product as a spot or directed spray.

One thing to consider, since the active ingredient is sodium chloride, is whether there will be any long-term deleterious effects on the soil. High concentrations of sodium chloride result in dispersion of soil particles, which will negatively affect the structure of the soil. If too high of a concentration, turfgrasses will not be able to continue to grow. Kentucky bluegrass is most susceptible, followed by ryegrass and tall fescue. Warm-season grasses tend to be more tolerant of high salt concentrations. But, for the same reason that you may have trouble maintaining turfgrass in areas that
receive high amounts of winter deicing salts, you may need to exercise caution when using this product.

It’s best to use as a spot-spray rather than a broadcast application. Also, try to avoid use on soils that already drain slowly, such as those high in clay. Research is ongoing at Ohio State on this issue. Of course, you can monitor sodium levels on your soils tests to insure that they are not getting too high for good turfgrass growth.

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