



Spotlight on Spotlight™

By Dr. John Stier, Department of Horticulture, University of Wisconsin-Madison

New broadleaf herbicides for turf have been few and far between in recent years. Reasons for the lack of development include increasingly higher costs for production and registration coupled with company focus on mergers and acquisitions. A number of compounds used in conventional agriculture hold promise for turf use and this is the most likely source of new products. Fluroxypyr is the active ingredient in a corn herbicide marketed as Starane™ for broadleaf weed control. Recent testing has shown its utility for a number of turf situations.

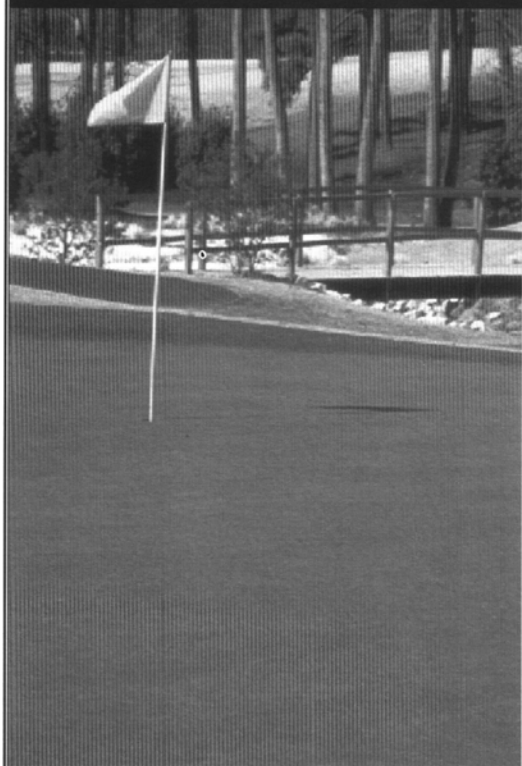
Since 2003 fluroxypyr has been available for turf use under the trade name Spotlight™. It is formulated as a methylheptyl ester which

provides the absorption properties of other esters but without the volatility. Spotlight is available as a conventional 1.5 lb a.e. per gallon. Applied through sprayers as a liquid, fluroxypyr's systemic activity lends itself to selective control of both perennial and annual broadleaf weeds in turf. Its chemical structure is that of a pyridine, the same group which includes the pre-emergent herbicide dithiopyr (Dimenson™). Unlike dithiopyr, though, fluroxypyr's mode of action is that of an auxin agonist similar to 2,4-D, dicamba, MCPP, triclopyr, and clopyralid. All auxin agonists work by causing an imbalance of plant hormones resulting in leaf and stem twisting and distortion (characteris-

tics often called "epinasty"). Symptoms occur within 24-48 hours after application although it may take two to three weeks for the plants to essentially grow themselves to death.

Fluroxypyr is rapidly degraded in the environment as determined by its short half-life. The half-life is a measure of how long a chemical will remain in the environment. Scientists determine half-life by applying the chemical to soil, water, or plants and measuring the time required for half of the chemical to be degraded. In soils, the half-life of fluroxypyr lasts one to four weeks depending on the soil type, temperature, and moisture. The two major modes of degradation are by

syngenta



Consider Primo MAXX® the turf's personal trainer.

Get your turf in top shape. Primo MAXX PGR makes turf thicker and stronger. Preparing it for summer's toughest challenges, like heat, drought, and disease. Not to mention everyday wear and tear. So it can be in prime condition all season long.



Contact Jim Shone at 1-708-217-8509 to learn more
about Syngenta products.

Important: Always read and follow label instructions before buying or using this product.
©2002 Syngenta. Syngenta Professional Products, Greensboro, NC 27419. MAXX®, Primo®, and the Syngenta logo
are trademarks of a Syngenta Group Company.

www.syngentaprofessionalproducts.com

microbes (bacteria, fungi, etc.) and by natural hydrolytic reactions with soil (hydrolytic means "splitting with water"). Sunlight is not a major means of degradation, reducing the potential for the compound to be degraded while it's being absorbed by weed leaves. Although not labeled for aquatic uses fluroxypyr breaks down rapidly in water. Where oxygen is available the half-life is less than 24 hours. Under anaerobic conditions, such as one might find at the bottom of a pond under a layer of sludge, the half-life is still only 7-14 days.

Our herbicide and PGR testing program at the University of Wisconsin-Madison has included tests on fluroxypyr since 2000. Weeds we've tested include creeping Charlie AKA ground ivy (*Glechoma hederacea*), white clover, broadleaf plantain, dandelion, black medic, wild violet, and others. We've evaluated a number of rates, formulations, and mixtures of fluroxypyr with other herbicides. Evaluation of mixtures is important as the efficacy of many herbicides is enhanced when two or more active ingredients are mixed together. Information on the activity of mixtures containing fluroxypyr and triclopyr was especially desirable as a potential replacement for Confront™ in residential applications.

Experimental pesticides are typically evaluated at various rates and compared to labeled rates of other pesticides in order to determine the best rate(s) should the experimental compound be marketed. Consumers often wonder why ranges of rates are often shown on the label rather than a single discrete value. In our second year of testing, three rates of fluroxypyr (shown as UHS-302) ranging from 0.74 to 1.5 oz per 1000 ft² were applied to Kentucky bluegrass/perennial ryegrass turf in early June. These were compared to Chaser Ultra, Chaser Amine, Confront, and a set of untreated

Table 1. Broadleaf weed control in a Kentucky bluegrass/perennial ryegrass turf four weeks after treatment with fluroxypyr (UHS-302) and commercially available broadleaf herbicides at the O.J. Noer Turfgrass Facility, Verona, WI, 11 July 2004.

Product	Rate (oz/1000ft ²)	Percent control		
		Dandelion	Clover	Creeping charlie
UHS-302	0.74	63.8 b [†]	100 a	82.3 a
UHS-302	1.1	74.5 ab	97.5 a	72.8 a
UHS-302	1.5	92.3 ab	100 a	93.8 a
Chaser Ultra	1.1	78.3 ab	100 a	90.0 a
Chaser Amine	1.3	89.0 ab	83.3 a	88.8 a
Confront	0.74	98.0 a	100 a	90.8 a
Untreated control	---	-67.5 c	-168 b	-3.3 b

† Values followed by the same letter within a column were not significantly different at P < 0.05.

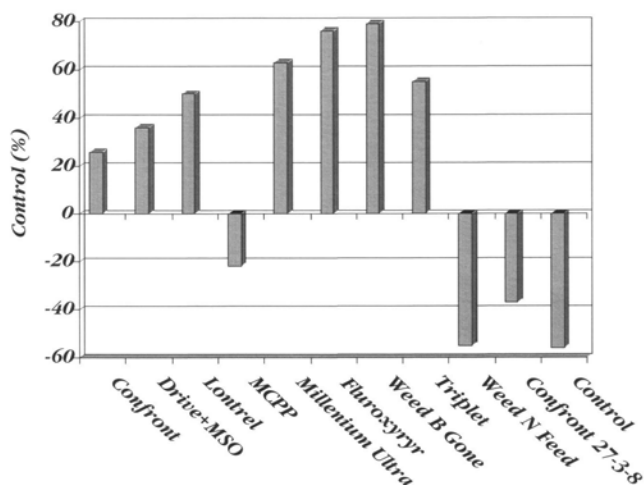


Fig. 1. Dandelion control in a Kentucky bluegrass/perennial ryegrass turf by fluroxypyr compared with other commercially-available broadleaf herbicides eight weeks after application, OJ Noer Facility, Verona, WI, 27 August 2005.

plots (control). The percent of weed control with each compound was evaluated four weeks after treatment (WAT). Data showed dandelion control corresponded with increased rates of fluroxypyr but not clover or creeping Charlie (Table 1). Thus, a lower rate of product is labeled for clover and creeping Charlie while a higher rate is labeled for dandelions. If both dandelions and clover exist in a turf, the rate labeled for dandelion should be used.

Data eight weeks after treatment in 2003 show similar results for the 1.5 oz rate of fluroxypyr compared to a wider range of existing products. Negative values for control plots and several existing compounds show that dandelion popu-

lations actually increased during the testing period (Fig. 1). Fluroxypyr and Weed-B-Gon™ were the most effective products, reducing dandelion populations by approximately 80%. The remaining 20% of dandelions not controlled were likely from small weeds shielded from chemical at the time of application by taller grass or from newly germinated dandelions not present at the time of application. Fluroxypyr does not have any significant soil activity and will not prevent new weeds from emerging. Clover was readily controlled by all of the compounds tested except granular weed-and-feed products (Fig. 2). Like many products, liquid formulations of fluroxypyr were significantly more effective than granular formulations

(data not shown).

Currently Spotlight is labeled for use on most of our commonly-used cool-season grasses: bentgrasses, Kentucky bluegrass, Chewings/red/sheep fescues, tall fescue, and perennial ryegrass. Hard fescue is not specifically listed on the label but its tolerance is likely similar to that of the other fine fescues. **There are three important limitations for golf course use.** First, some phytotoxicity may occur when used on bentgrasses. Secondly, the product is not labeled for greens or tees. Thirdly, rates for bentgrasses are limited to 2/3 of a pint per acre (0.25 oz per 1000 ft²). This rate may not give acceptable control of many broadleaf weeds such as chickweed, clover, or dandelion.

Additional herbicides containing fluroxypyr may become available in the future. The range of weeds controlled and the relatively low

environmental impact and toxicity of fluroxypyr make it a useful tool among the relatively small group of broadleaf herbicides available for use on turf. Like many broadleaf herbicides it has some limitations

for use on bentgrass. Additional information on mixtures with other active ingredients, timing (e.g., spring versus autumn applications), and safety on less common turfgrass species are needed. ♣

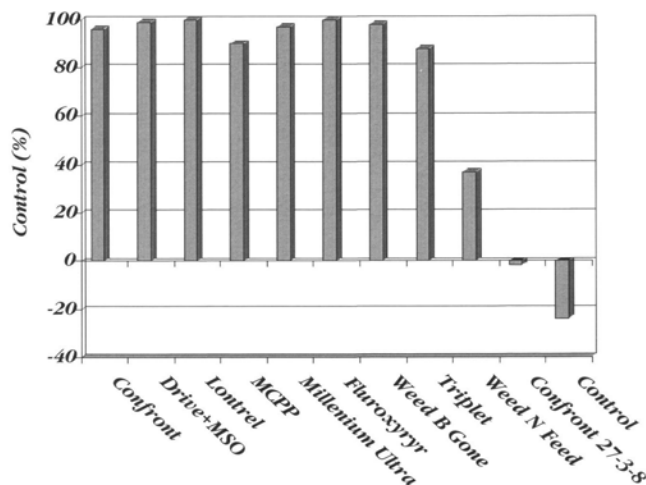


Fig. 2. White clover control in a Kentucky bluegrass/perennial ryegrass turf by fluroxypyr compared with other commercially-available broadleaf herbicides eight weeks after application, OJ Noer Facility, Verona, WI, 27 August 2005.

syngenta



BannerMAXX
Fungicide

Barricade
Herbicide

Daconil
Fungicide

Heritage
Fungicide

Medallion
Fungicide

PrimoMAXX
Plant Growth Regulator

SubdueMAXX
Fungicide

Syngenta never stops working
to keep your course green.

Creating the best turf demands the best products. We're constantly refining formulations and developing new ones. To ensure you always have what you need to keep turf healthy and beautiful.

Contact Jim Shone at 1-708-217-8509 to learn more about Syngenta products.

Important: Always read and follow label instructions before buying or using these products. ©2002 Syngenta. Syngenta Professional Products, Greensboro, NC 27419. Banner®, Barricade®, Daconil®, Heritage®, MAXX®, Medallion®, Primo®, Subdue®, and the Syngenta logo are trademarks of a Syngenta Group Company.

www.syngentaprofessionalproducts.com