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Residual Crabgrass Control and Broadleaf Weed Efficacy with Imprelis Herbicide

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Abstract
Imprelis (aminocyclopyrachlor) was released by DuPont Professional Products into the turf market in spring 2011 as a broadleaf herbicide. It is part of a new chemical subclass called pyrimidine carboxylic acids. Work conducted at Iowa State the past couple of years show Imprelis to be very effective against a broad spectrum of broadleaf weeds. Its advantage is that it is effective against several hard to control weeds such as ground ivy, violets, and henbit. It also has the advantages of being applied at very low rates of active ingredient and is rainfast, meaning that it does not need to remain on the weed leaves for a period of time. It is safe on most cool-season grasses and some warm-season grasses, including zoysiagrass. Anecdotal evidence suggests Imprelis may also have postemergence activity against crabgrass.

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Residual Crabgrass Control and Broadleaf Weed Efficacy with Imprelis Herbicide

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Introduction

Imprelis (aminocyclopyrachlor) was released by DuPont Professional Products into the turf market in spring 2011 as a broadleaf herbicide. It is part of a new chemical subclass called pyrimidine carboxylic acids. Work conducted at Iowa State the past couple of years show Imprelis to be very effective against a broad spectrum of broadleaf weeds. Its advantage is that it is effective against several hard to control weeds such as ground ivy, violets, and henbit. It also has the advantages of being applied at very low rates of active ingredient and is rainfast, meaning that it does not need to remain on the weed leaves for a period of time. It is safe on most cool-season grasses and some warm-season grasses, including zoysiagrass. Anecdotal evidence suggests Imprelis may also have postemergence activity against crabgrass.

The objective of this research was to evaluate various application dates of Imprelis 2SL to determine its efficacy and residual performance for control of crabgrass and broadleaf weeds in "weak" established turf.

Materials and Methods

The trial was conducted at the ISU Horticulture Research Station, Ames, Iowa. Plots were located on a non-irrigated sward of Kentucky bluegrass infested with weeds and were arranged in a randomized complete block design with four replications. Individual plots measured 5 ft × 5 ft. Dandelion and crabgrass were the primary broadleaf and grassy weeds at the site. Soil pH was 7.6 with soil P and K contents of 17 and 58 ppm, respectively. Soil type was a Nicollet clay-loam (fine-loamy, mixed, mesic, Typic Hapluldoll).

Treatments included Imprelis 2SL and Trimec Classic herbicides applied at various timings (Table 1). All products were applied through TeeJet 8002VS nozzles in a spray volume equivalent to 2 gallons/1,000 ft^2 powered by carbon dioxide supplying 40 lb per square inch.

Herbicide efficacy ratings were assessed visually using a 0 to 100 percent linear scale where 0 percent = no weed cover and 100 percent = complete weed cover. Phytotoxicity was assessed visually on a 1–9 scale where 1 = dormant or dead turf, 6 = commercially acceptable turf, and 9 = ideal turf. Ratings for herbicide efficacy and phytotoxicity were evaluated at the beginning of each month starting in June and concluding in October 2011. Data were analyzed by using the General Linear Models procedure of SAS (Statistical Analysis Software). Mean separation was performed using Fisher's protected least significant difference at the ($P<0.05$) level.

Results and Discussion

Differences were observed between the treatments on two of the five rating dates (Table 2). Plots receiving applications of Imprelis and Trimec Classic on May 1, 2011 had 62 and 46 percent less weed coverage compared with the untreated control during June. However, percentage weed cover for these treatments increased during the months of July and August as the plots became heavily infested with crabgrass. Phytotoxicity

was observed on plots receiving Imprelis on May 1. Overall, the discoloration was minor and disappeared in one week.

Percentage weed cover in plots receiving applications of Imprelis and Trimec Classic on June 1, 2011 were reduced but were not different from the untreated control in July, August or September. Phytotoxicity was not observed from the June 1 Imprelis application. Plots treated with Imprelis on May 1 and Trimec classic on June 1 had 63 percent less weeds compared with the untreated control in October.

These data suggest that residual control of broadleaf weeds by Imprelis was most effective when applied on May 1. Results from this study indicate that Imprelis does not have post-emergence activity against crabgrass.

Table 1. Product, rate, and application timing of two herbicides used to evaluate the performance for control of crabgrass and broadleaf weeds in established turf.

Treatment	Product	Application rate (ml/1,000 ft^2)	Application timing
1	Imprelis 2SL	3.06	May 1
2	Trimec Classic	43.45	May 1
3	Imprelis 2SL	3.06	June 1
4	Trimec Classic	43.45	June 1
5	Control	-	-

Table 2. Percent weed coverage of plots treated with Imprelis and Trimec Classic herbicides. Values represent the mean of four replications.

		June	July	August	September	October
Treatment	Product/timing	Percent weed coverage				
1	Imprelis/May 1	31	50	90	20	6
2	Trimec Classic/May 1	44	39	69	15	14
3	Imprelis/June 1	80	33	68	14	13
4	Trimec Classic/June 1	86	41	83	9	6
5	Untreated control	81	60	76	21	16
	LSD	21	NS	NS	NS	7