

GREEN INDUSTRY SHOWCASE



Blackwolf Run Country Club, Kohler, Wisc. shows the efficacy of Dimension herbicide when used for crabgrass control.

New herbicide has wide window of application

Many herbicides are available to control crabgrass and other annual grasses in cool-season turf. Until recently, however, golf course superintendents and lawn care operators have often had to compromise weed control for turf safety.

Narrow application windows have compounded this problem. The registration last summer of Monsanto's Dimension turf herbicide by the Environmental Protection Agency will, the company believes, make the product a welcome tool in the arsenal against weed control.

Dimension is formulated as a 1 lb. active ingredient per gallon emulsifiable concentrate (IEC). According to Monsanto, Dimension is part of a new class of herbicide chemistry developed by the company.

The active ingredient, dithiopyr, enters plants through crowns, roots and shoots, inhibiting cell development and growth. The major site of physiological activity is within developing plant meristems found in roots and shoots of susceptible plants.

Prior to registration by the EPA in June 1991, the herbicide had undergone several years of extensive laboratory and field testing. Under an Experimental Use Permit (EUP), dithiopyr was examined by major universities and tested in commercial field trials across the United States.

Use for pre-emergence control—Applied as a pre-emergence control, dithiopyr controls both large and smooth crabgrass as well as other annual grass species such as barnyardgrass and foxtail. Broadleaf weeds controlled include chickweed, shepherdspurge, corn speedwell,

henbit, prostrate spurge and yellow wood-sorrel.

Works in competitive turf—According to Monsanto, Dimension has proven effective when applied as a pre-emergent to control goosegrass in the southern U.S. In highly competitive turf, dithiopyr provides good goosegrass control at a rate of 2 qts. per acre. Less consistent results may occur with heavy goosegrass pressure at the 2 qt. rate. Dimension controls many grasses and broadleaf weeds, but research has focused primarily on pre-emergence control of crabgrass. At the recommended rates of 0.25 lbs. (1 qt.) to 0.50 lbs. (2 qts.) active ingredient per acre, trials have shown preemergence crabgrass control consistently averaging above 90 percent.

In 1989 trials at Penn State, dithiopyr provided control of 96 and 97 percent when applied as a pre-emergent, at rates of 0.38 lb. ai/A and 0.50 lb. ai/A, respectively, with data collected 145 days after treatment. Performance was decreased only slightly when the product was used at a rate of 0/25 lb. ai/A. In trials at the University of Massachusetts, the herbicide provided more than 90 percent control of smooth crabgrass at the 0/25 lb. ai/A rate in studies done from 1987 to 1990. Trial applications were made from April 20 to May 10 during those years.

Post-emergence applications of Dimension can also be effective, says Monsanto, and it sites studies at the University of Massachusetts. There, 90 percent control of treated crabgrass was achieved in the one- to four-leaf stage, with 1-1/2 quarts (0.38 lb.) to 2 quarts (0.5

lb.) of product per acre. Control dropped significantly at this rate when dithiopyr was applied alone to tillering crabgrass 2 to 4 inches tall with multiple plants.

University rooting safety studies have shown dithiopyr does not affect established turfgrass roots. In these studies, turfgrass roots were harvested, weighed and measured after application of the product.

Research at the University of Maryland, conducted on "Palmer" perennial ryegrass, confirmed the safety of dithiopyr to root systems. Dry weights for roots harvested 30 days after a 0.5 lb. ai/A treatment with dithiopyr were 171 milligrams. When roots were collected 60 days after treatment, root weight decreased to 158 milligrams. Trials on "Penncross" creeping bentgrass, conducted at the University of Maryland, also supported the rooting safety of Dimension.

In those trials, roots of turfgrass treated with dithiopyr at a rate of 0.5 lb. ai/A had root dry weights of 96 milligrams 60 days after treatment.

Untreated turfgrass roots yielded a weight of 82 milligrams after a 60-day period.

Opening the application window—Dimension can be applied alone for both pre- and post-emergence crabgrass control. This flexibility, characterized by its early post-emergence activity and long residual control, combines to stretch the application window.

Monsanto reports very good residual control. One application at a 0.5 lb. ai/A rate controls crabgrass and other weeds for the entire season.

Data from Massachusetts indicates that dithiopyr will control crabgrass above the 90 percent level for six months in established Kentucky bluegrass and perennial ryegrass turf.

Circle No. 191 on Reader Inquiry Card