

Preemergence Siduron Controls Crabgrass Safely in Four Turfgrasses

CRABGRASS and goosegrass are two weed pests that cause serious problems during the months of turf establishment in the spring. Previous studies have shown that most preemergence crabgrass herbicides are toxic to turfgrasses when applied at seeding time or within a few weeks after emergence.

Preliminary studies have shown that siduron¹ controlled crabgrass in bentgrass, Kentucky bluegrass, Merion bluegrass, red-top fescue, and Pennlawn red fescue when applied at seeding time without affecting germination.

In North Carolina, two tests were conducted to determine the effects of siduron on crabgrass and goosegrass, and also its effects on the establishment of several warm- and cool-season turfgrasses. One test was conducted in 1964 and another in 1965.

Test plots were set up in an area heavily infested with crabgrass at Raleigh, North Carolina; soil type is Cecil clay loam. Test rates of siduron were applied in 4-foot bands across triple-replicated strips of turfgrasses 3 feet wide. The five warm-season grasses tested were common bermudagrass, Tifton 328 bermudagrass, carpetgrass, centipede grass, and Meyer zoysia. Three cool-season grasses were Merion bluegrass, Kentucky 31 tall fescue, and Pennlawn red fescue.

All eight grasses were plotted in the 1964 tests. Tifton 328 and Meyer zoysia were sprigged, and the other grasses seeded, on May 8, 1964. However, only the six seeded turfgrasses were planted in the 1965 plots, on April 16. Seedbeds were prepared by till-

By
W. M. LEWIS
and
W. B. GILBERT

Department of Crop Sciences
North Carolina State University
Raleigh, North Carolina

ing in 8-8-8 fertilizer at the rate of 25 lbs./A. In mid-June after planting, additional 16-8-8 fertilizer was applied at 10 lbs./1,000 sq. ft. Plots were irrigated as needed during a three-week period after planting.

Siduron was applied immediately after planting (with a second treatment in some cases one month later). Rates in terms of pounds active ingredient per acre were 4, 6, 2+(4), 8, and 4+(4).

In September of each year, 1964 and 1965, the percent crabgrass control and goosegrass control was determined (Table 1). The number of each weed species in a random square foot sample in each plot was counted. This number was converted to percent on the basis of the number of weeds in untreated check plots. Turfgrass stand establishment was based on visual ratings

which were converted to percent values based on untreated check plot stands.

Crabgrass Controlled

All rates of siduron gave excellent crabgrass control in 1964; but in 1965, the 6 lb./A. and 8 lb./A. rates gave 12% to 24% better control than all others. There was no apparent advantage to applying siduron in split applications over single treatments. In 1965, split applications gave somewhat less control of crabgrass.

None of the rates of siduron treatments controlled goosegrass adequately. The 8 lb./A. rate gave only 49% control in 1964, and 60% control in 1965 tests. In 1965, only the 4 lb./A. and 8 lb./A. rates were significantly different from the check plots.

Siduron Retards Four of Eight Grasses

Turfgrass stand establishment was determined on October 21, 1965, for both 1964 (Table 2) and 1965 (Table 3) tests. Results were based on visual ratings, and for ease of comparison, all data were calculated as percent of check plot turf establishment.

In both years, many siduron-

Table 1. Percent crabgrass control and goosegrass control from pre-emergence siduron treatments.

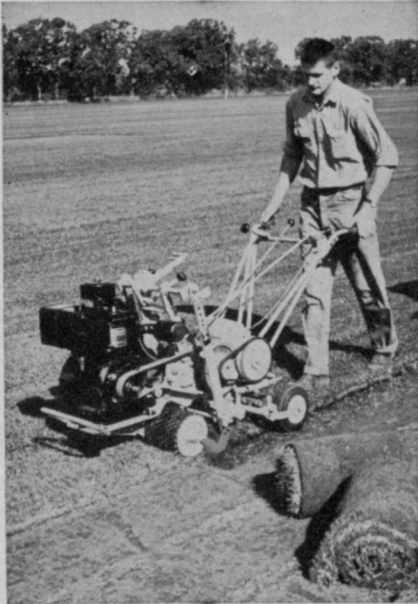
Siduron rates lbs./A. (a.i.)	% Crabgrass Control		% Goosegrass Control	
	Sept. 4, '64 17 wks. after treatment	Sept. 18, '65 22 wks. after treatment	Sept. 4, '64 17 wks. after treatment	Sept. 18, '65 22 wks. after treatment
4	98 a ¹	68 a	61 a	52 ab
6	93 a	92 a	43 a	18 bc
2+(4)*	95 a	80 a	45 a	18 bc
8	99 a	92 a	49 a	60 a
4+(4)*	99 a	75 a	69 a	28 abc
Check	0 b	0 b	0 b	0 c
Plants/sq. ft. in check	94	28	28	36

*Second application of 4 lbs./A. made approximately one month after the first application.
¹Numbers followed by the same letter are not significantly different at the 5% level of probability, according to Duncan's Multiple Range Test.

¹Siduron is technically called 1-(2-methylcyclohexyl)-3-phenylurea. DuPont's trade name for the herbicide is Tupersan.

How fast can you say...

chop!



No matter *how* fast, it won't be faster than the high-velocity cut-off unit on a RYAN Heavy-Duty Sod Cutter (photo).

Chop! Just like that you get a clean, *absolutely square and vertical* end cut...automatically. And right on the button to the exact length you're pre-set from 1 to 9 feet.

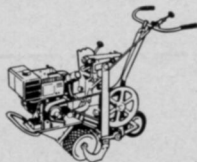
This ability to cross-cut sod as you go is just one of many reasons RYAN is the first choice of 9 out of 10 commercial sod cutters.

Another? Production... up to 15,000 square yards of perfect sod per day.

Another... visibility. The operator sees and follows the previous cut at all times... strips the field clean without a bit of waste.

For still other reasons why a RYAN will cut *better sod faster* (sod that *lays* better and faster, too), write today for the new RYAN Heavy-Duty Sod Cutter Bulletin.

For an easy to
move companion
unit, choose the
**RYAN JR.
SOD CUTTER**



Highly maneuverable in restricted areas, easy to move from job to job, the famous Ryan Jr. cuts 100 sq. ft. of sod per minute. Cuts a 12" strip up to 2½" thick. Write for Bulletin!

Manufacturers of aerators, renovators, vertical mowers, spreaders, rollers, and sod cutters.

Ryan EQUIPMENT COMPANY

2055 WHITE BEAR AVE., ST. PAUL, MINN., 55109

Table 2. Average stand (%) of five warm-season (WS) and three cool-season (CS) turfgrasses treated with siduron at the time of establishment. Grasses were planted May 8, 1964 and stands evaluated October 21, 1965.

Turfgrass	Season Type	Percent stand at siduron rates (lbs./A.)				
		4	6	2+ (4)	8	4+ (4)
Carpetgrass	WS	14	36	6	4	0
Centipedegrass	WS	1	7	0	0	0
Common bermudagrass	WS	11	37	15	11	12
Tifton 328 bermudagrass*	WS	113	83	88	67	78
Meyer zoysiagrass*	WS	108	108	108	108	108
Merion bluegrass	CS	482	291	361	194	367
Kentucky 31 tall fescue	CS	567	440	453	383	513
Pennlawn red fescue	CS	433	433	378	322	489

*Planted as sprigs.

treated plots of carpetgrass, centipedegrass, and common bermudagrass did not germinate, or their stands were very sparse. There were 18 subplots of each grass variety. No carpetgrass germinated in 8 plots in each year, 16 centipedegrass plots were bare in 1964 and 17 plots bare in 1965, and common bermudagrass was not found in 5 plots in 1964 nor in 4 plots in 1965. There was apparently no relation between the application rates of siduron and a lack of germination.

Sprigged Tifton 328 bermudagrass was definitely retarded by siduron. Plots did not start to fill in until mid-August of the first year. By the end of the second year, only the plot treated 4 lb./A. had an average stand greater than the check (Table 2, 113%). One subplot at the 8 lb./A. rate, and one at the 4+(4) lb./A. rate, were bare.

Treated Zoysia and Cool-Season Turfs Form Sod Mat

Meyer zoysiagrass, which was sprig-planted, was not affected adversely by any rate of siduron treatment. Plots filled in quickly

during the first year forming a dense sod, and all treated plots had a turf stand greater than their checks (Table 2, 108%). Meyer zoysia was apparently the only warm-season grass tested that can be treated safely at planting time with siduron.

Germination and establishment of the three cool-season grasses were not affected by siduron applications. In fact, average stands were increased as much as 133% to 567% due to siduron's crabgrass killing power.

In summary, siduron at 6 lbs./A. and 8 lbs./A. consistently gave a high degree of preemergence crabgrass control. None of the five siduron treatments, however, gave acceptable goosegrass control. Siduron cannot be safely used at seeding time for weed control in carpetgrass, centipedegrass, or common bermudagrass nor when Tifton 328 bermudagrass is sprig planted. Conversely, sprigged Meyer zoysia was not adversely affected by siduron, and siduron did not affect germination and establishment of the three cool-season grasses, Merion bluegrass, tall fescue, and red fescue.

Table 3. Average stand (%) of three warm-season and three cool-season turfgrasses treated with siduron at time of establishment. Grasses were seeded April 16, 1965 and stands evaluated October 21, 1965.

Turfgrass	Seeding rates (lbs./1,000 sq. ft.)	Percent stand at siduron rates (lbs./A.)				
		4	6	2+ (4)	8	4+ (4)
Carpetgrass	3	24	14	8	10	5
Centipedegrass	3	0	1	0	0	0
Common bermudagrass	1	4	8	6	8	10
Merion bluegrass	4	300	367	167	400	200
Kentucky 31 tall fescue	5	233	183	200	283	183
Pennlawn red fescue	4	200	233	133	233	142