
CHEMICAL LOG

Reducing Herbicide Rates for Summer Weed Control in Bermudagrass

By B.J. Johnson

Bermudagrasses are widely used for home lawns, athletic fields, golf courses, and recreational parks throughout the southern parts of the United States. To maintain a desirable quality turf, several factors are needed in the overall management program. One of these is the use of herbicides to control crabgrass and goosegrass during the spring and summer.

When preemergence herbicides are applied to a bermudagrass turf at recommended rates for more than one year, are we using too much of the chemicals? Research conducted at the Georgia Station from 1993 through 1995 shows that preemergence herbicide rates can be reduced during the second and third years and still maintain effective crabgrass and goosegrass control.

Procedure

Five preemergence herbicides (Barricade, Surflan, Dimension, pendimethalin and Ronstar) were applied at various rates over a three-year period for crabgrass and goosegrass control in common bermudagrass. The recommended herbicide rate will be referred to as 1X rate.

The 1X herbicide rates in the crabgrass experiment were 0.75 pound ai/A for Barricade, 2.0 pounds ai/A for Surflan, 0.5 pound ai/A for Dimension, 3.0 pounds ai/A for pendimethalin, and 3.0 pounds ai/A for Ronstar.

In the goosegrass experiment, the 1X rates were 3.0 pounds ai/A for Surflan and 0.75 pound ai/A for Dimension, while the rates for Barricade, pendimethalin and Ronstar were the same as given for crabgrass. There were five weed control programs for each herbicide in the crabgrass and goosegrass experiments.

For example, the rates used in the second weed control program were 1X in 1993 followed by 3/4X in 1994 and 1/2X in 1995. Rates in the fifth weed control

program were 1/2X in 1993 followed by 1/4X in 1994 and 1995.

Weed Control

With the increasing environmental and regulatory pressures, it may be necessary to reduce the total quantity of herbicides used for weed control in turfgrasses. Reducing herbicides not only would be beneficial to the surrounding environment, but would reduce the overall cost for the turf manager. What level of weed control do we really need? For golf greens, weed control should be maintained at a 100-percent level, while less than 100 percent would probably be acceptable in most industrial parks, athletic fields and home lawns.

Crabgrass Control

When preemergence herbicides were applied the first year (1993) to an untreated turf, all herbicides required a full (1X) rate to control 90 percent or more crabgrass in common bermudagrass. To maintain this level of control during the following two years, the rates for Barricade, Surflan and pendimethalin can be reduced to 1/2X the second year, followed by 1/4X the third year. Rates for Dimension can be reduced to 1/4X the second and third years. Ronstar applied at reduced rates did not control crabgrass as effectively as did the other herbicides. Ronstar required a 3/4X rate the second year followed by a 1/2X rate the third year.

Although full herbicide rates were required to maintain at least 90 percent crabgrass control during the initial year of treatment, the control was maintained at this level with reduced rates the following two years. The Dimension rate can be reduced by 75 percent the second and third years; Barricade, Surflan and pendimethalin rates can be reduced by 50 percent the second year and 50 percent the third year.

Goosegrass Control

None of the preemergence herbicides controlled goosegrass effectively in common bermudagrass during the first year (1993). The poor control was related to drought stress during May through July when only seven inches of rainfall occurred. This was ten inches below normal. However, 90 percent or higher goosegrass control was obtained during the second and third years with Dimension, Ronstar, Barricade and pendimethalin. For Dimension and Ronstar, the rates can be reduced to 1/2X the second year and 1/4X the third year, while the rates for Barricade and pendimethalin can be reduced to 3/4X the second and 1/2X the third year. Surflan controlled less than 70 percent of the goosegrass during the first and second years and less than 90 percent during the third year.

Even though none of the herbicides controlled goosegrass during the first year, the control was maintained at 90 percent or more during the second and third years using reduced rates. For Dimension and Ronstar, the rates can be reduced by 50 percent the second year and 75 percent the third year, while rates for Barricade and pendimethalin can be reduced by 25 percent the second year and 50 percent the third year.

These results show that full pre-emergence herbicides are not needed after the initial year of treatment to maintain effective crabgrass and goosegrass control in bermudagrass. It is not known what the performance of reduced rates will be in other turfgrass species. The results would probably be similar in other warm-season grasses, but not in tall fescue.

B.J. Johnson is with the University of Georgia, and his work in the area of turfgrass tolerance and overseeded greens has been supported by the Georgia Turfgrass Foundation Trust. His article comes from the Georgia Turfgrass Association's newsletter, GTA Today, Vol. 11, No. 1.