

# Crabgrass and goosegrass control with herbicides in bermudagrass turf

By B. J. Johnson<sup>1</sup>

Turfgrasses are important in beautification of the surrounding environment. In most instances we as individuals let the turf take care of itself or we give it only a little attention. When this happens, turf managers or home owners may wonder why this results in a poor quality turf infested with weeds.

Crabgrass (*Digitaria sanguinalis*) and goosegrass (*Eleusine indica*) are major weeds that infest turfgrasses throughout the Southeast. A common management practice is the application of preemergence herbicides before these weeds emerge in the spring. Herbicides must be used at the correct rate and at the proper time to insure maximum weed control. Regardless of herbicide selection, it may be necessary to apply the treatments annually to maintain a high level of weed control. For a herbicide to be acceptable, it must control weeds without injuring turfgrass.

## Crabgrass Control

**Short-season control.** When preemergence herbicides are applied in early spring and control weeds only through May or June, this is considered to be short-season control. In our studies, treatments of Dacthal, Balan, Betasan, or Ronstar controlled crabgrass effectively during this period. Our results indicate that all of the above chemicals gave consistent short-season crabgrass control. Good early-season crabgrass control is shown in Figure 1 (page 32). Therefore, when control is desired for only a 2 to 3-month period, the selection of herbicides is not a major problem provided chemicals are applied prior to crabgrass emergence.

**Full-season control.** When preemergence herbicides are applied in the spring and controls crab-

grass effectively throughout the summer, without additional treatment, this is referred to as full-season control. We found in our studies that Balan and Dacthal failed to provide consistent crabgrass control while Betasan and Ronstar controlled the weed effectively throughout the summer. Generally, Balan controlled crabgrass for 2 months and then weeds began to germinate and emerge. This was true throughout the Piedmont region of Georgia. In the Mountain region where spring and summer temperatures were cooler, Balan controlled crabgrass slightly better with a single application. However, the control was not consistent each year. The chemical may control the weeds completely in a given year, but poorly the following year. This occurred even when the chemical was applied at the same rates and dates each year.

Betasan and Ronstar resulted in good to excellent crabgrass control in our studies from a single application each year. Therefore, for effective full-season crabgrass control it is important to select a chemical that will provide long term control. The residual activity of Balan and Dacthal was not as good as with Betasan and Ronstar.

**Multiple-year treatments.** Balan applied in March and May controlled approximately 75% of crabgrass during the summer in the Piedmont region of Georgia. When the second application was delayed until June, crabgrass control was poor and unacceptable. This occurred since crabgrass had already germinated when June treatments were made. Therefore, time of second treatment was very important in maintaining a high level of crabgrass control as shown in Figure 2 (page 32). The control was similar whether the initial March treatment was applied at 2 or 3 lb/ai/A when followed by the 2 lb ai/A in May. Crabgrass control was improved only slightly when Balan was applied in 3 applications (March and May and July) when compared with control from 2 applications (March and May).

Crabgrass control in the Mountain region of Georgia was also improved from March and May treatments. In

all instances the control at the Mountain location was slightly better than at the Piedmont location. This indicates that cooler spring and summer temperatures following Balan treatments were desirable as a higher percentage of crabgrass was controlled over a longer period than when similar treatments were applied in warmer areas. It should be emphasized that multiple Balan treatments did not control crabgrass any better than did single treatments of either Betasan or Ronstar.

Two applications of Dacthal (March and June) did not produce any higher consistent crabgrass control than did a single March treatment. Two factors that may have contributed to the inconsistent control from repeated treatments were: a) the initial 10 lb ai/A rate of Dacthal may have been too low and b) the second application probably should have been applied in May rather than June. The amount of control may improve by using higher rates and repeated treatments made closer together.

**Dates of preemergence treatments.** In most instances for preemergence herbicides to be effective in controlling crabgrass, the chemicals must be applied prior to emergence of weeds. In our studies, Betasan or Ronstar controlled crabgrass equally as good whether the chemicals were applied in mid February or March. In all instances the control was reduced when treatments were delayed until April or May. The difference in dates of treatment on crabgrass control is shown in Figure 3 (page 32). Balan applied as a single treatment at either date did not control crabgrass nor did Dacthal control crabgrass consistently.

These results indicate that herbicides should be applied in February or March for best preemergence crabgrass control. In general, the control will not be as good when treatments are delayed until April. These results differ from those reported in the northeastern United States where temperatures are colder in early spring. When the mean temperature reaches 55°F for a

Continues on page 32, 34

<sup>1</sup>Professor of Agronomy, University of Georgia, Georgia Station, Experiment, Georgia 30212. Supported by State, and Hatch funds allocated to the Georgia Agricultural Experiment Stations.

<sup>2</sup>Trade names for herbicides are included for the benefit of the reader and do not imply any endorsement or preferential treatment.



**Figure 1.** Crabgrass control in the right plot treated March 7 with Betasan compared with no control in untreated left plot. Picture made June 14.

**Figure 2.** Crabgrass control with Balan. Plot on left treated February 25 and May 10, compared with single February 25 treatment on right. Picture taken August 16.



**Figure 3.** Comparison of dates of Betasan treatments on crabgrass control.

**Upper:** Right plot treated February 12.



**Lower:** Right plot treated May 13.

**Figure 4:** Goosegrass control in right plot treated with Ronstar compared with poor control in left plot treated with Dacthal.



2-week period, crabgrass seed will initiate germination.

In a later study we found that MSMA could be applied in combination with either Dacthal or Betasan when crabgrass had already emerged before preemergence treatments were made. MSMA treatments controlled the emerged crabgrass and preemergence treatment prevented additional crabgrass from germinating. The combination treatments works good when applied in April or early May when the weeds are small. When combination treatments are delayed until June, it may be necessary to apply a second MSMA treatment at 7 to 10 days after the initial treatment to control larger crabgrass plants. When granular herbicides (Balan or Ronstar) are used in preemergence treatments, each chemical (preemergence and MSMA) must be applied in separate applications.

*Fall vs spring treatments.* It was found in our studies that when Betasan was applied in September for winter weed control, crabgrass was effectively controlled throughout the following summer without any additional treatment. However, it was necessary to repeat Ronstar treatments the following spring, but only at the one-half rate. Therefore, when chemicals are used for both winter and summer weed control, it may be possible to eliminate or reduce the spring treatment rate when following the winter treatments of selected herbicides. These results did not occur with either Dacthal or Balan. It should be emphasized that when only summer weeds are a problem, then only spring treatments should be made.

#### Goosegrass Control

Ronstar was the only pre-emergence herbicide evaluated in our studies that controlled goosegrass acceptably with a single spring treatment. Dacthal and Balan controlled goosegrass slightly in early spring, but the control did not last through the summer. A comparison of Dacthal and Ronstar treatments on goosegrass control is shown in Figure 4 (page 32). In our studies Betasan did not control goosegrass at any time. Recently a combination product of Betasan and Ronstar<sup>2</sup> has given similar goosegrass control when compared with Ronstar applied alone. In this product both

chemicals are included at lower than the recommended rate. Betasan is included mainly for crabgrass and Ronstar for goosegrass.

Goosegrass germinates about 30 days later in the spring than crabgrass. Therefore, in the Piedmont region of Georgia, Ronstar should be applied by mid April for effective control. In most instances goosegrass control was nearly as good when Ronstar was applied in February and March as compared with April treatment. This indicates that Ronstar has good residual activity on goosegrass.

Ronstar should not be applied to bermudagrass overseeded with cool-season grasses unless a poor quality turf can be tolerated for up to 6 weeks after treatment. Immediately following Ronstar treatment, the cool-season grasses will be discolored and stands reduced. The poor transition occurs since cool-season grasses will go out faster than bermudagrass will initiate early spring growth. Preliminary data from Betasan and Ronstar treatments indicates that the lower rates in this combination will not injure the cool-season grasses as severely as when Ronstar was applied alone.

#### Bermudagrass Tolerance

Dacthal and Ronstar were applied at 1X and 3X rates to Tifway, Tifgreen, Tifdwarf, and Ormond bermudagrasses for 6 consecutive years. A delay in early growth of bermudagrasses in the spring was generally effected by both chemicals at sometime during the 6-year study.

Turf treated with 3X herbicide rates tended to have a reduced rate of growth in the spring than did turf treated at recommended rates. There was generally no pattern in delayed growth of bermudagrasses treated with various herbicides each year. Dacthal treatments generally delayed early growth of Tifgreen, Tifdwarf and Ormond bermudagrasses more severely than Tifway. Ronstar tended to delay early growth of Tifdwarf less and Tifgreen more than other bermudagrasses.

These results show that herbicides will more than likely influence early spring growth of turf in the spring. Therefore, it is important to select a chemical that causes the least turf injury. It was also noted that herbicides applied at 3X rates injured the turf more than 1X rates. This indicates that care should be taken to

insure proper rate usage during chemical application. This not only saves money in cost of chemicals but will reduce or eliminate unnecessary turf injury.

Although Balan and Betasan treatments were not included in the present studies, it was noted in a separate study that Balan will generally delay early growth of bermudagrass slightly more than Dacthal. In most instances, Betasan delayed early bermudagrass growth similar to Ronstar treatments.

Even though Dacthal and Ronstar delayed early bermudagrass growth in early spring, neither of the chemicals affected quality of turf in May or stand of turf anytime during the summer when applied at recommended rates. This indicates that the delay in early turf growth in April was temporary and the turf fully recovered within a 4-week period.

#### Summary

To have and maintain a good quality turf as shown in Figure 5, care must be taken to select a herbicide that will control weeds without injuring the turfgrass. Some major findings for crabgrass and goosegrass control in bermudagrass turf are:

1. Betasan and Ronstar controlled crabgrass throughout the summer with a single application.
2. Balan applied in March and May controlled a higher percentage of crabgrass than a single March treatment.
3. Dacthal did not control crabgrass consistently even when repeated applications were made.
4. Betasan applied in the fall controlled crabgrass the following summer without additional treatment. Ronstar required an additional one-half rate in the spring.
5. Ronstar was the only herbicide evaluated in these studies that effectively controlled goosegrass.
6. Preemergence herbicides for crabgrass control must be applied by mid-March while goosegrass treatments can be delayed until mid-April.
7. Dacthal and Ronstar treatments delayed early spring growth of bermudagrass, but did not affect turf quality in May or turf stands during the summer.