

**Evaluation of Herbicides for Effect on Seed Set  
in Kentucky Bluegrass and Rough Bluegrass  
Seed Production, 2002-2003**

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**Abstract**

Axiom<sup>®</sup> and Define<sup>®</sup> were applied to three Kentucky bluegrass cultivars across four application dates to evaluate crop injury and seed set reduction. Both Axiom and Define reduced seed set on Kentucky bluegrass. ‘Shamrock’ was the most sensitive cultivar, followed by ‘Geronimo’ and ‘Merit’. The November 11 and February 8 applications generally had the greatest effect on seed set. In addition, Beacon<sup>®</sup> was evaluated on rough bluegrass for crop injury and reduction in seed set. Of the four treatment dates, April 9 had the greatest effect on seed set with the cultivar ‘Saber’. The ‘Saber’ location appeared to be more sensitive to herbicide applications in general than the ‘Laser’ location.

**Introduction**

Previous research evaluated a variety of fall-applied herbicides that included Axiom and Beacon alone and in combination with other herbicides. Treatments were applied to Kentucky bluegrass to determine crop injury and reduced seed set, and applied to rough bluegrass to evaluate control of seedling and established plants. Treatments that included Axiom provided the best seedling control (52-85 percent), depending on cultivar. Axiom treatments had the greatest effect on reducing crop height. Treatments with Axiom reduced seed set on ‘Shamrock’ by 83 to 88 percent at 11 oz/acre and 37 percent at 9 oz/acre, while ‘Merit’ and ‘Geronimo’ were generally unaffected.

**Methods and Materials**

Research was established during the 2002-2003 season to evaluate Axiom and Define on seed set in Kentucky bluegrass cultivars ‘Merit’, ‘Shamrock’, and ‘Geronimo’. Plots were replicated three times in a randomized complete block design in three commercial Kentucky bluegrass seed fields north of Madras, Oregon. Herbicide treatments were applied October 7 and November 11, 2002, February 18 and April 9, 2003.

Plots were also established at two locations to evaluate the effect of Beacon on crop injury and seed set in rough bluegrass cultivars ‘Sabre’ and ‘Laser’. Treatments were applied on the same dates as Axiom and Define. Both sets of treatments were applied to 10-ft by 20-ft plots with a CO<sub>2</sub>-pressurized, hand-held boom sprayer at 40 psi and 20 gal/acre water. Plots were evaluated May 8 for crop injury and June 11 for reduction in seed set.

## Results and Discussion

Define did not provide an expected increase in margin of safety over Axiom when evaluating seed set reduction in Kentucky bluegrass (Table 1). It appears that the cultivar ‘Shamrock’ has the greatest sensitivity to both Axiom and Define, followed by ‘Geronimo’ and then ‘Merit’. Applications made earlier in the fall may have less effect than late fall through early spring applications across the three varieties.

The most damaging Beacon application to seed set was on the rough bluegrass cultivar ‘Sabre’ following the April 9 application. This supports previous evaluations of Beacon on rough bluegrass where late applications in April had the greatest effect on seed head development.

No crop injury was observed following any of the Axiom and Define treatments during the May 8 evaluation of Kentucky bluegrass plots, except slight discoloration from the October 7 application of Axiom on ‘Shamrock’. Beacon application to ‘Laser’ caused some stunting of established plants compared to the untreated plots. The most severe stunting and some burning were observed following the April 9 application.

Table 1. Effect of application timing for Axiom and Define on seed set in Kentucky bluegrass cultivars near Madras, Oregon, 2002-2003.

| Treatment | Rate | Timing | Percent reduction in seed set |            |            |
|-----------|------|--------|-------------------------------|------------|------------|
|           |      |        | ‘Merit’                       | ‘Shamrock’ | ‘Geronimo’ |
| Axiom     | 9 oz | Oct 7  | 3.3 b <sup>1</sup>            | 8.3 c      | 26.7 bc    |
| Define    | 9 oz | Oct 7  | 6.7 ab                        | 23.3 c     | 3.3 d      |
| Axiom     | 9 oz | Nov 11 | 3.3 b                         | 75.0 a     | 50.0 a     |
| Define    | 9 oz | Nov 11 | 13.3 ab                       | 61.7 ab    | 28.3 bc    |
| Axiom     | 9 oz | Feb 18 | 6.7 ab                        | 55.0 ab    | 5.0 d      |
| Define    | 9 oz | Feb 18 | 10.0 ab                       | 50.0 b     | 16.7 cd    |
| Axiom     | 9 oz | Apr 9  | 3.3 b                         | 48.3 b     | 28.3 bc    |
| Define    | 9 oz | Apr 9  | 18.3 a                        | 20.0 c     | 40.0 ab    |
| Untreated | ---- | ----   | 0.0 b                         | 0.0 c      | 0.0 d      |

<sup>1</sup>Mean separation with LSD  $P \leq 0.05$ .

Table 2. Effect of application timing for Beacon on seed set in rough bluegrass cultivars near Madras, Oregon, 2002-2003.

| Treatment | Rate    | Application date | Percent reduction in seed set |         |
|-----------|---------|------------------|-------------------------------|---------|
|           |         |                  | ‘Sabre’                       | ‘Laser’ |
| Beacon    | 0.75 oz | Oct 8            | 0.0 b <sup>1</sup>            | 8.3     |
| Beacon    | 0.75 oz | Nov 11           | 3.3 b                         | 6.7     |
| Beacon    | 0.75 oz | Feb 18           | 5.0 ab                        | 5.0     |
| Beacon    | 0.75 oz | Apr 9            | 15.0 a                        | 3.3     |
| Untreated | ----    | ----             | 0.0 b                         | 0.0     |
|           |         |                  |                               | NS      |

<sup>1</sup>Mean separation with LSD  $P \leq 0.05$ .