

BIOLOGICAL CONTROL OF *POA TRIVIALIS*
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Poa trivialis is a common contaminant in seed lots. Once *P. trivialis* is established in a desirable turfgrass stand, it is very difficult to selectively eradicate. This study investigates the biological control of *P. trivialis* in established turfgrass stands using a bacterium, *Xanthomonas* sp. This bacterium has been used to cause bacterial wilt symptoms in *P. trivialis* that are similar to those seen in creeping bentgrass infected with *Xanthomonas campestris*, the causal agent of bacterial wilt.

In 1996, we conducted a field study at the Hancock Turfgrass Research Center, E. Lansing, MI. Three inch diameter plugs of *Poa trivialis*, which were grown under greenhouse conditions, were transplanted into an established *Poa annua* stand. Two *P. trivialis* plugs were placed in each plot within our study area. Plots were mowed at 1/2" on a daily (5 days per week) basis just before treatments were applied, and fertility was maintained at 2 lb. nitrogen per 1000 sq. ft. per month. Four replications of each treatment were made. Spray treatments were applied using a nitrogen backpack sprayer. Treatments began on June 12, 1996 and were continued through August 13, 1996 according to the application schedule below.

Treatment	Rate	Interval
1. <i>Xanthomonas campestris</i>	48 hrs. growth (max. 10^7 CFU/cm ²)	Daily
2. Autoclaved broth	Volume as above	Daily
3. Mycoshield	2.5#/acre (50 gal/1000 ft ² drench)	14 days
4. Untreated control	_____	_____

Data were collected on August 13, 1996 by visually estimating the percentage of each *P. trivialis* plug which was infected with bacterial wilt and exhibiting browning, wilting or death (see Table .) The rating showed that the daily *Xanthomonas* treatments gave statistically significant bacterial wilt infection when compared to all 3 of the other treatments. These results encouraged us to continue our investigation.

In 1997 we conducted another study at the Hancock Turfgrass Research Center, with some modifications to our original design. Under greenhouse conditions, we grew 1' x 2' flats of *P. trivialis*. These were transplanted in May, 1997 to a bentgrass area which was irrigated and fertilized with 1/2 lb. nitrogen per 1000 ft² per month to maintain acceptable turf quality. Plots measured 2' x 4.5'. All turf was hand mowed to 1/2 inch height of cut. Plots were mowed and immediately treated 3 times each week. Treatments began on June 12, 1997 using the same methods and treatments as in 1996, except that treatments 1 and 2 were applied 3 times per week. Four replications of each treatment were included. Ratings were taken on July 22, July 31, and August 8, 1997. The entire study area was also treated with 3336 and Daconil Ultrex all season long to prevent disease.

The results from this past season have been encouraging. The plots protected with tetracycline looked good all season long. The other plots, especially the ones treated with *Xanthomonas*, showed wilt and decline in quality.

Future plans include studies which incorporate a combination of a selective herbicide with bacterial treatments. Investigations into seeding studies and those examining established stands will also be conducted.