BIOLOGICAL CONTROL FOR *POA ANNUA*

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Annual bluegrass, *Poa annua*, is considered by many individuals to be the most important weed problem on golf courses. Numerous attempts at controlling annual bluegrass with herbicides and growth regulators have failed. The failure of chemical control can largely be attributed to several factors. Certain chemicals, such as the arsenical compounds, can build up to toxic levels after continuous application. As a result this build up often affects the desirable creeping bent grasses and Kentucky bluegrasses as well as the annual bluegrass. In addition, many chemicals are only slightly more toxic to annual bluegrass than to other turf. On a hot day or under other conducive environmental conditions this slight differential toxicity may result in stressed or declining creeping bentgrass. Because of the problems associated with chemical management of annual bluegrass, turfgrass superintendents have often resorted to learning how to propagate rather than eliminate annual bluegrass.

Biological control is a fairly new concept in the control of diseases and weeds. With biological control, a beneficial microorganism is used to inhibit the growth of weeds. Biological control has a distinct advantage in that the microorganism is usually quite selective for a specific weed.

A biological control bacterium has been found that specifically inhibits annual bluegrass. In laboratory studies, the bacterium was sprayed on pots of annual bluegrass; death or severe stunting occurred one to two weeks later. Further laboratory and greenhouse studies demonstrated that when the biological control bacterium was sprayed on flats containing mixed stands of annual bluegrass, creeping bentgrass and Kentucky bluegrass, the annual bluegrass was killed while no ill-effects whatsoever were noted on the bent grasses or Kentucky bluegrasses. Grasses other than annual bluegrass were not affected regardless of concentration or amount of the biological control agent applied. In host range studies, Penncross, Penneagle, Emerald, Toronto, Seaside and numerous cultivars of Kentucky bluegrasses were unaffected by the biological control bacterium. These studies demonstrated the high degree of selectively of the bacterium for annual bluegrass.

Michigan State University believes the bacterium has so much potential as a biological control agent, that a patent application has been issued with the U.S. Patent office. Further studies are destined at the Hancock Turfgrass Research Center during the summer of 1987. These studies will include rate, frequency of application and effects of environment on the activity of the biological control bacterium for inhibiting annual bluegrass. It is believed that a marketable and reliable biological control agent may be available for control of annual bluegrass on the golf course in a few years.