

### Transgenic Creeping Bentgrass Project

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The goal of plant breeding programs is to produce new varieties that are an improvement over what already exists. Plant breeders are interested in improving characteristics such as disease resistance, color, quality, insect resistance, heat tolerance, and drought resistance. The strategies used to make improvement in these characteristics usually involve searching for individuals that have desirable characteristics and then using these individuals to create an improved variety. This process has worked well, however, if a desirable characteristic is not present in a species, such as creeping bentgrass, breeding progress can not be made.

In the last ten years scientist have worked very hard to develop technologies that will allow desirable characteristics to be transferred from one species to another. For example, bacteria have been found that possess resistance to certain non-selective herbicides. Moving the gene that controls this herbicide resistance from the bacteria to creeping bentgrass would allow us to develop creeping bentgrass varieties resistant to non-selective herbicides. Dr. Mariam Sticklen and her associates here at Michigan State University were the first scientists to successfully transfer non-selective herbicide resistance to creeping bentgrass and we are currently in the process of developing a herbicide resistant creeping bentgrass variety. The development of this type of biotechnology in creeping bentgrass has tremendous potential for the control of annual bluegrass in creeping bentgrass greens and fairways.

Turfgrass biotechnology is still very young, however, it is a very useful tool for the improvement of characteristics that have been difficult to make breeding progress with by conventional methods. For example, genes that can improve disease resistance, heat tolerance, cold tolerance, drought tolerance, and insect resistance have been located in other species and could eventually be transferred to creeping bentgrass. Turfgrass biotechnology has the potential to change the way turfgrass is managed and will make the next ten years a very exciting time in turfgrass breeding.