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GENETIC TRANSFORMATION OF CREEPING BENTGRASS WITH IPT GENE CONTROLLING CYTOKININ SYNTHESIS

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Leaf senescence is a major problem in turfgrass management. The objective of this study was to investigate whether transformation of creeping bentgrass (*Agrostis stolonifera*), a widely-used cover crop on golf courses, with an isopentenyl transferase (ipt) gene controlling cytokinin synthesis, could delay leaf senescence and improve plant growth. We have created two types of transgenic bentgrass with a bacterial cytokinin synthesis gene (ipt) using an *Agrobacterium* transformation technique. Gene expression was controlled by either a promoter that is activated at the start of leaf senescence (Psag12-ipt), or by a heat shock promoter (Phsp18-ipt) that is activated by exposure to temperatures >35 °C. Leaf senescence, tiller density, root growth, and cytokinin content of transgenic and non-transgenic plants were determined to evaluate the effects of over-expression of the ipt gene on creeping bentgrass.