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## **Trials of confined and unconfined field level for ecological risks assessment of genetically modified zoysiagrass (*Zoysia japonica* Steud. )**

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### **Objectives**

The aim of this study was to determine an ecological risks assessment of genetically modified zoysiagrass, and to design unconfined field level for pollen mediated gene flow and morphological study of zoysiagrass.

### **Materials and Methods**

#### 1. Material :

-Plant: Wild-type zoysiagrasses ( *Zoysia japonica* Steud., *Z. cinica*, and *Z.matrella*) and transgenic *Z. japonica* Steud.

#### 2. Methods:

Experimental plot design (CRD, RCBD) in confined and unconfined field trials, bialaphos selection to identify pollen gene flow from genetically modified zoysiagrass to weed plants, molecular characterization by PCR, and morphological study of transgenic and wild-type zoysiagrasses on three type soils and in nature field with weed plants.

### **Results and Discussion**

We tried to determine an ecological risks assessment; pollen gene flow, morphological study, allergy assessing, male sterility for environmental safety. The method and results of using bialaphos resistance as a selectable marker from a genetically modified (GM) zoysiagrass to measure gene flow which would be useful for assessing the potential for GM plant to transfer their novel genes to compatible relatives. From 2003 to 2004, we had done the gene flow test of zoysiagrass to various weeds in the confined field. According to the results of bialaphos selection and PCR analysis, the pollen gene flow was not identified in weed plants. In 2003, transgenic and wild-type zoysiagrasses were cultivated on three different types of soils (tideland, yellow soil, and Ara series soil) to determine an appropriate soil type for growth of zoysiagrass. Furthermore, the growth capacity of transgenic and wild-type zoysiagrasses was determined in natural field with weed plants. As a result, transgenic and wild-type zoysiagrasses were not shown the significantly differences in terms of their growth in weedy field.