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Phenotypic performance and environmental risk assessments of genetically modified herbicide-tolerant *Zoysia* grass (*Zoysia japonica* Steud.)

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Herbicide-tolerant *Zoysia* grass (*Zoysia japonica* Steud.) has been successfully produced by *Agrobacterium*-mediated transformation. GM *Zoysia* grasses effectively tolerated herbicide (7ml /ℓ basta) spraying, while wild-type and weeds died, thus making it possible to effectively manage the control of wide variety of weeds with the GM *Zoysia* grass. An environmental risk assessment of GM *Zoysia* grass was performed as a prerequisite for the examination of its release into the environment by the governmental regulatory agency. Experiments were done according to the guidelines (Ministry of Agriculture and Forestry Notification # 2002-2). For a comparative study of the environmental/biodiversity factors between wild-type and GM *Zoysia* grass, substantial trait equivalence, cross fertilization, gene flow, allergic reactions were included. For substantial trait equivalence, there was no difference between the wild-type and the GM species. To assess cross-fertilization and gene flow, a non-selective herbicide, bialaphos, was used. Results showed that cross-fertilization and gene flow from the GM *Zoysia* grass were not observed among the weed plants but they occurred among the wild-type *Zoysia* grass (an average of 6% at the distance of near 0 cm, average of 1.2% at 50 cm and 0.12% within radius of 3m, but not found at distances over 3m). Skin tests of the pollen extracts from both WT and GM grass cultivars showed 6.9% of the individual subjects with a positive allergic reaction. Other experiments are being carried out to assess the biodiversity concerns.

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배추 바이러스병, 뿌리혹병 및 무름병의 복합내병성 순계 조기 육성 체계

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배추의 3대병인 바이러스병(*Turnip Mosaic Virus*), 뿌리혹병(*Plasmodiophora brassicae*) 및 무름병(*Erwinia carotovora*)에 복합내병성이고 활력이 강하면서 서로 다른 자가불화합성 인자형의