

The assessment of the disease occurrence and pathogen flora on transgenic plants

Hsin-Der Shih, Mon-Yin Din, and Chien-Yih Lin
Agricultural Research Institute, COA, Taichung, Taiwan

As concerns for transgenic plants and its environmental impacts grow among countries around the world, the work of safety assessment of transgenic plants is ever so vital and necessary. In accordance with "Transgenic Plants Field Trial Management Guidelines" issued by the Council of Agriculture, this research conducted experiments on amylopullulanas (APU) transgenic rice; phytase transgenic rice and porcine lactoferrin transgenic rice; phytase transgenic potato; and *ipt* transgenic Sprouting broccoli, and assessed the effects of the diseases. The goal was to collect relevant information, conduct observations and experiments on isolated-transgenic-crop-fields, assemble an information database of the relationship between the disease and the affected environment, establish an observation and experiment guideline based on various transgenic crops and its characteristics, and further institute a safety standard for assessing diseases in the environment for future studies. In a survey of bio-safety associated with diseases of transgenic crops in field trial, many disease and nematodes were investigated. The result showed that the severe scale of brown spots caused by *Bipolaris oryzae* had occurred on APU transgenic rice from 2003-2004. In addition, potato early blight caused by *Alternaria solani* had occurred in the field during the growing season of the year 2005-2006. The severity of the disease of non-transgenic potato was shown at 84.55%, more serious than transgenic crop at 74.98%.

Fig.1. GM product biosafety assessment from lab to market in Taiwan

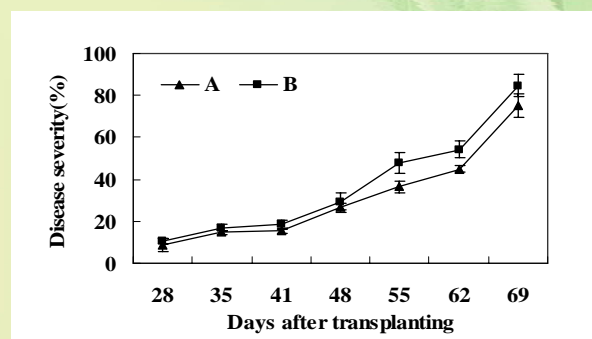
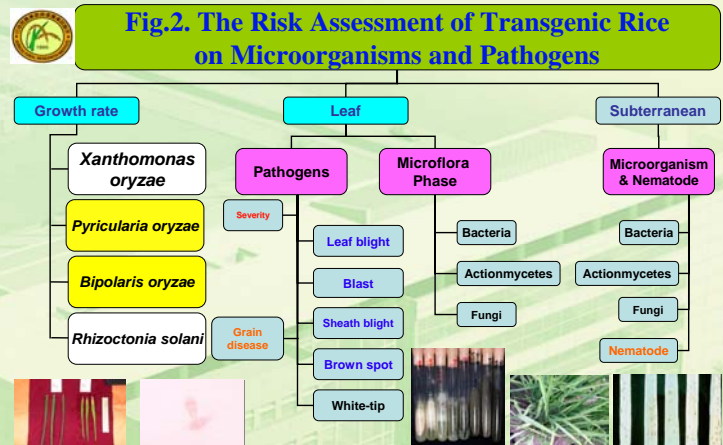
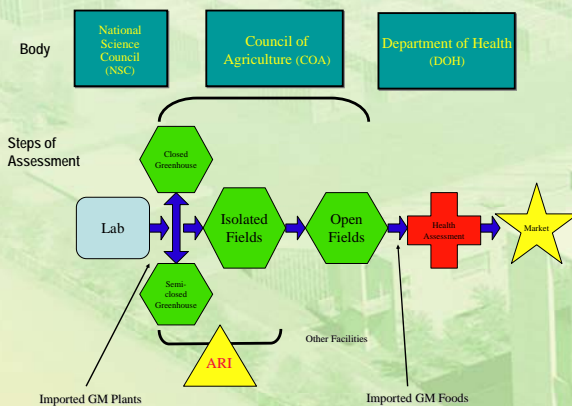


Fig.3. Disease severity of transgenic potato (A) and non-transgenic potato (B) infected by *Alternaria solani* at GMO isolated field of TARI in 2005.

Tab. 1. Incidence of diseases severity on *Apu* rice and non-*GM* rice recorded at tillering (90 days) stage

	2003				2004			
	Exp. 1		Exp. 2		Exp. 1		Exp. 2	
	APU	TNG67	APU	TNG67	APU	TNG67	APU	TNG67
Rice Blast	+	+	-	-	-	-	-	-
	MS	R						
Brown Spot	+	+	MS	MS	S	R	MS	MS
	S	R						

KEY
R Resistance
MS Medium Severity
S Severe

