

Table 1 (continued)

Virus group	Virus ^a	Chimeric gene ^b	Transgenic plant	Challenge virus ^c	Ref.
Tenui	RSV	35S-CP-nos	Rice	RSV	27
Tobamo	TMV	35S-CP-nos	Tobacco	TMV	1, 2
			Tomato	ToMV, TMV	81
Tobra	ToMV	35S-CP-rbcS	Tobacco	ORSV, PMMV, TMGMV	17
			Tobacco	TMV	82
			Tomato	ToMV	81
			Tobacco	TRV, PEBV	83
Tombus	CyRSV	35S-CP-nos	Tobacco	TRV	84
			Tobacco	CyRSV	52
Tospo	TSWV	35S-NCP-nos	Tobacco	TSWV	19, 85, 86
			Tobacco	TSWV, INSV	34
			Tobacco	TSWV, INSV, GRSV	20
			Tobacco	TSWV, INSV, GRSV	22
		Triple gene ^d	Tobacco		

^aAbbreviations: AIMV, alfalfa mosaic virus; ArMV, arabis mosaic virus; BNYVV, beet necrotic yellow vein virus; BYMV, bean yellow mosaic virus; CMMV, chrysanthemum mild mottle virus; CMV, cucumber mosaic virus; CYVV, clover yellow vein virus; CyRSV, cymbidium ringspot virus; GCMV, grapevine chrome mosaic virus; GRSV, groundnut ringspot virus; INSV, impatiens necrotic spot virus; MCMV, maize chlorotic mottle virus; MDMV, maize dwarf mosaic virus; ORSV, odontoglossum ringspot virus; PAMV, potato aucuba mosaic virus; PeaMV, pea mosaic virus; PEBV, pea early browning virus; PeMV, pepper mottle virus; PLRV, potato leaf-roll virus; PMMV, pepper mild mottle virus; PPV, plum pox virus; PRV, papaya ringspot virus; PVM, potato virus M; PVS, potato virus S; PVX, potato virus X; PVY, potato virus Y; RSV, rice stripe virus; SMV, soybean mosaic virus; TEV, tobacco etch virus; TMGMV, tobacco mild green mosaic virus; TMV, tobacco mosaic virus; ToMV, tomato mosaic virus; TRV, tobacco rattle virus; TSV, tobacco streak virus; TSWV, tomato spotted wilt virus; WMVII, watermelon mosaic virus II; and ZYMV, zucchini yellow mosaic virus.

^bCorresponds to promoter-gene-3' end: 35S-, 35S promoter from cauliflower mosaic virus (CaMV); nos, nopaline synthase 3' end; 19S, 19S promoter from CaMV; -35S, 35S 3' end from CaMV; T-DNA, 3' end from *Agrobacterium* T-DNA 25S gene; rbcS, ribulose 1,5 bis-phosphate carboxylase small subunit 3' end; Ext, extensin gene promoter; PAL, Phenylalanine ammonia lyase gene 2 from *Phaseolus vulgaris*.

^cViruses for which protection was observed.

^dTriple gene: 35S-TSWV NCP-nos, 35S-INSV NCP-nos, 35S-GRSV NCP-nos in one transformation vector.

Resistance to tospovirus infection by expression of NCP genes in transgenic plants has been very successful. It appears that resistance to the homologous virus in plants expressing the tomato spotted wilt virus (TSWV) NCP gene may be related to the levels of NCP transcript (18) and not directly to protein