Effect on tomato (*Lycopersicon esculentum*) cultivars

The net impact of stress on plant growth

The table shows the effect of individual and combined ozone and viral infection on the biomass of tomato cultivars Heinz 1350, Vendor, and Fireball.

Crop: Tomato (*Lycopersicon esculentum*) cv. Heinz 1350, Vendor and Fireball.
Virus: *Cucumber mosaic virus, Tobacco mosaic virus*
Stress 1: Rub inoculation with extracts of TMV infected tobacco leaves and CMV infected *N. glutinosa* leaves
Stress 2: Ozone- 0-60 pphm ozone (vol/vol) for 3h
Stage of the plant: Vegetative

Cultivars	Stress treatments	Plant response to stress	
		Type A parameter *	Type B parameter*
		Shoot weight	Foliar injury[#]
Heinz 1350	Ozone (30 pphm)	-44.4 ↑	1.3
	Ozone (45 pphm)	-36.1 ↑	2.7
	CMV	-36.1 ↑	NA
	CMV and ozone (30 pphm)	-8.3 ↑	2.8
	CMV and ozone (45 pphm)	-36.1 ↑	1.4
	TMV	-13.9 ↑	NA
	TMV and ozone (30 pphm)	-30.6 ↑	2.6
	TMV and ozone (45 pphm)	-27.8 ↑	4.6
	CMV+TMV	-13.9	NA
	CMV+TMV and ozone (30 pphm)	↑ 2.8 ↓	4.4
	CMV+TMV and ozone (45 pphm)	-2.8 ↑	4.7
Vendor	Ozone (30 pphm)	-29.73 ↑	1.33
	Ozone (45 pphm)	NA	3.2
	CMV	-2.7 ↑	NA
	CMV and ozone (30 pphm)	2.7 ↓	1.8
	CMV and ozone (45 pphm)	NA	2.87
	TMV	-10.8 ↑	NA
	TMV and ozone (30 pphm)	16.2 ↓	0.33
	TMV and ozone (45 pphm)	NA	2.8
	CMV+TMV	-24 ↑	NA
	CMV+TMV and ozone (30 pphm)	27 ↓	1.47
	CMV+TMV and ozone (45 pphm)	NA	3
Fireball	Ozone (30 pphm)	NA	2.47
	Ozone (45 pphm)	NA	2.8
	CMV	NA	NA
	CMV and ozone (30 pphm)	NA	2.13
	CMV and ozone (45 pphm)	NA	3.66

	TMV	NA	NA
	TMV and ozone (30 pphm)	NA	2.2
	TMV and ozone (45 pphm)	NA	3.6
	CMV+TMV	NA	NA
	CMV+TMV and ozone (30 pphm)	NA	1.73
	CMV+TMV and ozone (45 pphm)	NA	3.53

Note:
The values presented in the table were calculated using the formula described below.

$$\text{Reduction over control (\%)} = \frac{(\text{Value}_{\text{Control}} - \text{Value}_{\text{Stress}})}{\text{Value}_{\text{Control}}} \times 100$$

1) '⬇'- indicates plant parameters affected by stress that lead to high susceptibility (higher the value more the damage).
2) '⬆'- indicates plant parameters affected by stress that lead to reduced susceptibility (higher the value less the damage).

'#'- Values are presented as it is from the source article without subjecting to the calculation.
'' - For more information on parameter classification, please refer to the 'methodology' tab.*

Reference-
Ormrod DP and Kemp WG (1979). Ozone response of tomato plants infected with cucumber mosaic virus and/or tobacco mosaic virus. *Canadian Journal of Plant Science* 59(4):1077-83.

The inference from the study: Ormrod and Kemp 1979 studied the effect of combined ozone and CMV, TMV, and CMV+TMV infection in tomato cultivars Heinz1350, Vendor and Fireball. The authors observed that virus infection enhanced ozone injury on plants in all the cultivars. The cultivar vendor experienced maximum suppression of biomass under combined stress.