Effect on wheat (*Triticum aestivum*) cultivars

The net impact of stress on plant growth

The table shows the effect of individual and combined salt and ozone stress on growth and physiology-related parameters of wheat cv BAW1059and Shatabdi.

Crop: Wheat (*Triticum aestivum*) cv BAW1059 and Shatabdi
Stress 1: Ozone-charcoal-filtered air or O3 at 1.0- and 1.5-times the ambient concentration
Stress 2: Salinity- 75 and 100 mM NaCl
Stage of the plant: Vegetative

Cultivars	Stress treatments	Plant response to stress					
		Type A parameters*				Type B parameters*	
		Biomass	1000 grain weight	Yield/ plant	Harvest Index	Stomatal conductance# ($mmol\ m^{-2}\ s^{-1}$)	Net photo-synthetic rate# ($\mu mol\ m^{-2}\ s^{-1}$)
BAW1059	1X Ozone	11.2↓	3.4↓	13.9↓	1.7↓	423	22.1
	1.5X Ozone	28↓	10.7↓	33.3↓	4.8↓	311	17.7
	75mM NaCl	8.5↓	5.2↓	5.5↓	-3.1↑	416	22.1
	75mM NaCl and 1X Ozone	9.5↓	3.6↓	8.3↓	-2.9↑	407	22.1
	75mM NaCl and 1.5X Ozone	18.8↓	9.4↓	19.4↓	-0.24↑	383	20.7
	100mM NaCl	28.5↓	11↓	13.9↓	-3.6↑	383	22.9
	100mM NaCl and 1X Ozone	16↓	9.7↓	13.9↓	-2.6↑	386	21.4
	100mM NaCl and 1.5X Ozone	16.2↓	16↓	16.7↓	0.24↓	323	19.2
Shatabdi	1X Ozone	1.2↓	0.9↓	4.6↓	3.8↓	413	22.2
	1.5X Ozone	11.3↓	7.7↓	11.6↓	-0.75↑	381	22.2
	75mM NaCl	16.5↓	5.5↓	11.6↓	-5.3↑	418	21.9
	75mM NaCl and 1X Ozone	15.5↓	6.8↓	20.9↓	-1.8↑	345	19.8
	75mM NaCl and 1.5X Ozone	21.3↓	8.4↓	23.3↓	2.3↓	337	18.5
	100mM NaCl	27.4↓	10.2↓	30.2↓	3.5↓	356	18
	100mM NaCl and 1X Ozone	23.4↓	10.4↓	27.9↓	5.3↓	266	15.9
	100mM NaCl and 1.5X Ozone	25.9↓	11.3↓	25.6↓	-0.7↑	328	19

Control values for Stomatal conductance-476(BAW1059), 459(Shatabdi); Net photosynthetic rate-24.1(BAW1059), 23.5(Shatabdi)

Reference-

Kamal MZ, Yamaguchi M, Azuchi F, Kinose Y, Wada Y, Funada R and Izuta T (2015). Effects of ozone and soil salinity, singly and in combination, on growth, yield and leaf gas exchange rates of two Bangladeshi wheat cultivars. *Asian Journal of Atmospheric Environment* 9(2):173-86

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

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

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.*

The inference from the study: Kamal et al., 2015 studied the effect of combined salt and ozone stress on wheat cv BAW1059 (salt-tolerant) and Shatabdi (salt-sensitive). The authors observed that both the cultivars, irrespective of their sensitivity to salt stress, were significantly affected by ozone. The salt-sensitive variety was affected more by salt stress, whereas ozone-induced more damage to the salt-tolerant one. Combined stress was detrimental to both the crops and a lesser extent than the dominant stressors in each case.