

Effect on wheat (*Triticum durum*) cultivars

The net impact of stress on plant growth

The table shows the effect of individual and combined salt and ozone stress on growth, yield and physiology-related parameters of wheat cv Neodur and Virgilio.

Crop: Wheat (*Triticum durum*) cv Neodur and Virgilio
Stress 1: Ozone- Charcoal-Filtered air treatment; and Ozone-Enriched air treatment with O₃ concentrations at approximately 35% higher the ambient air concentrations)
Stress 2: Salinity- 75 mM NaCl
Stage of the plant: Vegetative

Cultivars	Stress treatments	Plant response to stress							
		Type A parameters*					Type B parameters*	Type C parameters*	
		Total dry weight	Plant height	Total number of ears	Total grain weight	Harvest Index	Stomatal conductance (mmol m ⁻² s ⁻¹)	Protein content (%)	Gluten content (%)
Neodur	Salinity	15.3 ↓	-4.1 ↑	14.7 ↓	13.5 ↓	-1.7 ↑	242	16.7	13.5
	Ozone	-6.5 ↑	0.31 ↓	3.2 ↓	0.7 ↓	4.2 ↓	456	14.9	11.7
	Salinity and Ozone	18.8 ↓	-5.5 ↑	17.9 ↓	10.7 ↓	-7.4 ↑	246	16.2	13
Virgilio	Salinity	7.7 ↓	-11.9 ↑	20.7 ↓	1.1 ↓	-5.4 ↑	250	15.1	11.8
	Ozone	3.3 ↓	-8.5 ↑	0.59 ↓	3.2 ↓	-0.3 ↑	418	14.5	11
	Salinity and Ozone	3.1 ↓	-14.9 ↑	19.8 ↓	0.15 ↓	-2.5 ↑	237	15.5	12.3

Control values for Stomatal conductance-386(Neodur), 273 (Virgilio); Protein content-14.2 (Neodur), 14.2 (Virgilio);, Gluten content-11(Neodur), 11.1 (Virgilio);

Reference-

Gerosa G, Marzuoli R, Finco A, Monga R, Fusaro I and Faoro F (2014). Contrasting effects of water salinity and ozone concentration on two cultivars of durum wheat (*Triticum durum* Desf.) in Mediterranean conditions. *Environmental pollution* 2014, 193:13-21.

Note:

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

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

- 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: Gerosa et al., 2014 studied the impact of combined salt and ozone stress on salt-sensitive wheat cv. Neodur and Virgilio. The authors observed that both the cultivars were more affected by salt than ozone stress. Combined stress was more detrimental to plant biomass and reproductive growth of Neodur, and salt stress was the most damaging stressor causing the most significant reductions in biomass, reproductive growth, and grain yield in Virgilio. Thus, the study indicates that combined salt and ozone stress have a more detrimental impact on biomass of wheat cv Neodur as compared to the effect of individual stress, whereas it was less harmful to plant growth and yield than salt stress in the case of Virgilio.