Effect on wheat cultivars (*Triticum aestivum* cv. Aqaab, MH-97)

The net impact of individual and combined stress on plant growth

Crop: Wheat (*Triticum aestivum cv.* Aqaab)
Stress 1: Salinity (15 dS m-1)
Stress 2: Waterlogging (0.01m)
Stage of plant: Tillering, booting

The table shows the effect of waterlogging and salt alone and in combination on the growth of wheat cultivars.

Soil	Cultivar	Treatment	Type A parameters				
			Grain yield	100 grain weight	Spike length	Number of spikes/plant	Number of tillers/plant
Non-compact	Aqaab	Waterlogging	21.7↓	9.3↓	9.4↓	9.9↓	NA
		Salt (15 dS m-1)	38.3↓	30.2↓	18.7↓	49.8↓	NA
		Salt (15 dS m-1) + Waterlogging (Simultaneous stress)	45.0↓	44.2↓	34.4↓	70.0↓	NA
	MH-97	Waterlogging	30.5↓	21.4↓	-3.7↑	28.4↓	6.5↓
		Salt (15 dS m-1)	50.8↓	50.0↓	48.1↓	64.3↓	43.5↓
		Salt (15 dS m-1) + Waterlogging (Simultaneous stress)	62.7↓	57.1↓	25.9↓	73.2↓	56.5↓
Compact	Aqaab	Waterlogging	-7.0↑	-9.1↑	14.8↓	16.8↓	-30.3↑
		Salt (15 dS m-1)	60.5↓	36.4↓	33.3↓	64.3↓	72.7↓
		Salt (15 dS m-1) + Waterlogging (Simultaneous stress)	39.5↓	30.3↓	48.1↓	64.3↓	51.5↓

	MH-97	Waterlogging	-28.1↑	-10.7↑	-4.7↑	0.0	-24.1↑
		Salt (15 dS m-1)	65.6↓	50.0↓	52.4↓	40.1↓	69.0↓
		Salt (15 dS m-1) + Waterlogging (Simultaneous stress)	43.8↓	39.3↓	40.4↓	40.1↓	55.2↓

Reference – Saqib M, Akhtar J, Qureshi RH (2004) Pot study on wheat growth in saline and waterlogged compacted soil I. Grain yield and yield components. Soil and Tillage Research 77(2):169-177.

Note: *Values presented in the table were calculated using the formula described below.*

$$\textit{Reduction over control (\%)} = \frac{(\textit{Value}_{\textit{Control}} - \textit{Value}_{\textit{Stress}})}{\textit{Value}_{\textit{Control}}} \; x100$$

1) '↓'- indicates plant parameters affected by stress that lead to high susceptibility (higher the value more the damage).
2) '↑' - indicates plant parameters less/not affected by stress leading to improved resistance (higher the value lesser the damage).

'' - For more information on parameter classification, please refer to the 'methodology' tab.*

Inference from the study: Saqib et.al. 2004, studied the interaction of waterlogging and salinity in two wheat cultivars aqaab and MH-97. Plants were subjected to single and simultaneous salt and waterlogging stress treatment. Plants were grown in two soil types; non-compact and compact. Grain yield, 100-grain weight, spike length, the number of spikes, and the number of tillers were reduced synergistically under combined stress for both cultivars in non-compact soil. However, this reduction was not synergistic for cultivar MH-97 in compact soil. **Thus, this stress combination is detrimental to the growth and physiology of wheat cultivars.**