Effect on wheat cultivars (*Triticum aestivum* cv. SARC-I, SARC-III, Pb-85, and 7-Cerros)

The net impact of individual and combined stress on plant growth

Crop: Wheat (*Triticum aestivum* cv. SARC-I, SARC-III, Pb-85, and 7-Cerros)
Stress 1: Salt (75 and 150 mM NaCl)
Stress 2: Hypoxia (40days)
Stage of plant: 10 days after germination

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

	Treatment	Plant response to stress (reduction over control %) Type A parameters*		
		Number of tillers	Shoot fresh weight	Shoot length
SARC-I	Hypoxic	-41.5↑	-9.9↑	5.0↓
	Salt (75 mM NaCl)	30.8↓	42.6↓	11.1↓
	Salt (75 mM NaCl) + Hypoxic (Simultaneous stress)	18.5↓	50.9↓	20.1↓
	Salt (150 mM NaCl)	50.7↓	74.9↓	22.6↓
	Salt (150 mM NaCl) + Hypoxic (Simultaneous stress)	50.7↓	82.1↓	33.1↓
SARC-III	Hypoxic	-23.1↑	0.1↓	11.7↓
	Salt (75 mM NaCl)	21.6↓	46.7↓	14.9↓
	Salt (75 mM NaCl) + Hypoxic (Simultaneous stress)	18.5↓	50.8↓	21.3↓
	Salt (150 mM NaCl)	43.2↓	77.9↓	30.8↓
	Salt (150 mM NaCl) + Hypoxic (Simultaneous stress)	50.7↓	82.5↓	40.7↓

Pb-85	Hypoxic	13.7↓	1.9↓	16.2↓
	Salt (75 mM NaCl)	28.8↓	46.7↓	17.1↓
	Salt (75 mM NaCl) + Hypoxic (Simultaneous stress)	4.1↓	50.8↓	22.1↓
	Salt (150 mM NaCl)	52.0↓	79.4↓	35.0↓
	Salt (150 mM NaCl) + Hypoxic (Simultaneous stress)	39.6↓	78.3↓	38.8↓
7-Cerros	Hypoxic	-14.2↑	-5.4↑	17.7↓
	Salt (75 mM NaCl)	36.4↓	52.4↓	9.0↓
	Salt (75 mM NaCl) + Hypoxic (Simultaneous stress)	37.7↓	52.4↓	20.8↓
	Salt (150 mM NaCl)	67.6↓	82.9↓	31.9↓
	Salt (150 mM NaCl) + Hypoxic (Simultaneous stress)	66.2↓	86.7↓	45.2↓

Reference - Aslam M, Ahmad HR, Qureshi RH, Nawaz S, Parveen S (1995) Effect of salinity and waterlogging interaction on growth and ionic distribution in leaves of wheat genotypes. Pak. J. Agri. Sci. 32(4): 282-286.

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

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

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: Aslam et.al. 1995, studied the interaction of hypoxia and salinity in four wheat cultivars SARC-I, SARC-III, Pb-85, and 7-Cerros. Plants were subjected to single and simultaneous salt and hypoxia stress treatment. The number of tillers, shoot fresh weight and shoot length were reduced synergistically more under combined stress in all cultivars. Higher

salinity resulted in more reduced growth. **Thus, this stress combination is detrimental to the growth and yield of wheat plants.**