



**Effect on sweet clover accessions (*Melilotus siculus* accession SA36980, SA36981, SA36983, SA39909, SA39910, SA40000, SA40001, SA40002, SA40004, SA40005, SA40006, SA40007, SA41637, SA41642, SA41645)**

**The net impact of individual and combined stress on plant growth**

Crop: Sweet clover (*Melilotus siculus* accession SA36980, SA36981, SA36983, SA39909, SA39910, SA40000, SA40001, SA40002, SA40004, SA40005, SA40006, SA40007, SA41637, SA41642, SA41645))  
 Stress 1: Salt (200mM NaCl)  
 Stress 2: Hypoxia  
 Stage of plant : 21 days after imbibition

The table shows the effect of hypoxia and salt alone and in combination on growth of sweet clover accessions.

	Treatment	Plant response to stress (reduction over control %)	
		Type A parameters*	
		Shoot dry mass	Root dry mass
SA36980	Salt (200mM)	37.9↓	43.6↓
	Hypoxia	-3.2↑	11.0↓
	Salt (200mM) + Hypoxia 1 day later (Sequential stress)	39.2↓	25.7↓
SA36981	Salt (200mM)	30.8↓	52.9↓
	Hypoxia	-5.0↑	20.6↓
	Salt (200mM) + Hypoxia 1 day later (Sequential stress)	30.9↓	42.5↓
SA36983	Salt (200mM)	27.8↓	40.3↓
	Hypoxia	-4.3↑	6.4↓
	Salt (200mM) + Hypoxia 1 day later (Sequential stress)	31.6↓	34.9↓

SA39909	Salt (200mM)	53.0↓	55.9↓
	Hypoxia	21.6↓	9.7↓
	Salt (200mM) + Hypoxia 1 day later (Sequential stress)	36.6↓	40.1↓
SA39910	Salt (200mM)	47.4↓	54.3↓
	Hypoxia	3.4↓	-9.5↑
	Salt (200mM) + Hypoxia 1 day later (Sequential stress)	43.4↓	50.5↓
SA40000	Salt (200mM)	43.4↓	54.4↓
	Hypoxia	20.1↓	16.5↓
	Salt (200mM) + Hypoxia 1 day later (Sequential stress)	38.8↓	31.1↓
SA40001	Salt (200mM)	34.8↓	30.9↓
	Hypoxia	-15.3↑	-1.7↑
	Salt (200mM) + Hypoxia 1 day later (Sequential stress)	27.2↓	43.6↓
SA40002	Salt (200mM)	38.2↓	32.4↓
	Hypoxia	-5.1↑	2.8↓
	Salt (200mM) + Hypoxia 1 day later (Sequential stress)	35.9↓	26.8↓
SA40004	Salt (200mM)	49.2↓	41.4↓
	Hypoxia	-9.7↑	-25.4↑
	Salt (200mM) + Hypoxia 1 day later (Sequential stress)	25.6↓	35.9↓
SA40005	Salt (200mM)	46.7↓	42.3↓
	Hypoxia	7.6↓	-23.2↑

	Salt (200mM) + Hypoxia 1 day later (Sequential stress)	29.9↓	42.3↓
SA40006	Salt (200mM)	55.4↓	46.5↓
	Hypoxia	-5.4↑	-27.0↑
	Salt (200mM) + Hypoxia 1 day later (Sequential stress)	48.9↓	33.8↓
SA40007	Salt (200mM)	39.9↓	25.9↓
	Hypoxia	-4.9↑	-2.2↑
	Salt (200mM) + Hypoxia 1 day later (Sequential stress)	18.7↓	36.7↓
SA41637	Salt (200mM)	-59.3↑	-14.2↑
	Hypoxia	-145.5↑	-61.9↑
	Salt (200mM) + Hypoxia 1 day later (Sequential stress)	-46.8↑	-8.0↑
SA41642	Salt (200mM)	17.1↓	45.6↓
	Hypoxia	-63.0↑	-47.6↑
	Salt (200mM) + Hypoxia 1 day later (Sequential stress)	-8.3↑	48.0↓
SA41645	Salt (200mM)	32.1↓	30.9↓
	Hypoxia	-44.0↑	-43.3↑
	Salt (200mM) + Hypoxia 1 day later (Sequential stress)	6.4↓	13.7↓

**Reference** – Striker GG, Teakle NL, Colmer TD, Barrett-Lennard EG (2015) Growth responses of *Melilotus siculus* accessions to combined salinity and root-zone hypoxia are correlated with differences in tissue ion concentrations and not differences in root aeration. *Environmental and Experimental Botany* 109: 89–98.

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

$$(Value_{Control} - Value_{Stress})$$

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

1) '↓' - indicates plant parameters affected by stress that lead to high susceptibility (higher the value more the damage).

2) '↑' - indicates plant parameters 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:** Striker et.al. 2015, studied the interaction of hypoxia and salinity in fifteen accessions of sweet clover plants. Plants were subjected to single and sequential salt and hypoxia stress treatment. Shoot dry mass was reduced synergistically under combined stress for cultivars SA36980 and SA36983 only. Root dry mass reduces synergistically under combined stress for cultivars SA40007 and SA41642. **Thus, this stress combination is detrimental to the growth of sweet clover cultivars SA36980, SA36983, SA40007, and SA41642.**