



Effect on maize cultivars (*Zea mays* L. cv. SC-P3444, Sammaz-35, EDTV)

The net impact of individual and combined stress on plant growth

Crop: Maize (*Zea mays* L. cv. SC-P3444, Sammaz-35, EDTV)
 Stress 1: Calcium deficiency
 Stress 2: Drought (75% and 50% of irrigation)
 Stage of plant: At sowing

The table shows the impact of calcium deficiency and drought alone and in combination on growth and yield of maize cultivars.

	Treatment	Plant response to stress (reduction over control %)				
		Type A parameters*				
		Ear length	Number of grains per row	Ear weight/plant	100-grain weight	Grain yield/ha
SC-P3444	Calcium deficiency	17.7↓	6.8↓	13.6↓	7.2↓	4.8↓
	Drought (75%)	31.3↓	14.5↓	29.2↓	8.7↓	18.3↓
	Calcium deficiency + Drought (75%) (Simultaneous stress)	39.1↓	18.6↓	43.3↓	18.2↓	31.5↓
	Drought (50%)	21.9↓	39.2↓	62.9↓	29.3↓	44.4↓
	Calcium deficiency + Drought (50%) (Simultaneous stress)	14.1↓	41.1↓	67.0↓	30.7↓	53.7↓
Sammaz-35	Calcium deficiency	-2.9↑	17.6↓	18.5↓	14.9↓	11.9↓
	Drought (75%)	8.8↓	24.3↓	39.8↓	18.8↓	27.1↓
	Calcium deficiency + Drought (75%) (Simultaneous stress)	13.5↓	28.9↓	43.3↓	23.5↓	36.9↓

	Drought (50%)	7.6↓	43.8↓	63.1↓	31.0↓	47.1↓
	Calcium deficiency + Drought (50%) (Simultaneous stress)	1.2↓	44.1↓	67.2↓	34.5↓	55.6↓
EVDT	Calcium deficiency	3.9↓	6.9↓	19.4↓	6.8↓	6.6↓
	Drought (75%)	12.8↓	27.8↓	38.6↓	8.9↓	29.4↓
	Calcium deficiency + Drought (75%) (Simultaneous stress)	9.4↓	34.4↓	48.6↓	11.1↓	39.1↓
	Drought (50%)	17.8↓	47.9↓	62.3↓	18.6↓	46.0↓
	Calcium deficiency + Drought (50%) (Simultaneous stress)	0.0	54.2↓	70.3↓	24.6↓	52.8↓

Reference – Abbas M, Abdel-Lattif H, Shahba M (2021) Ameliorative Effects of Calcium Sprays on Yield and Grain Nutritional Composition of Maize (*Zea mays* L.) Cultivars under Drought Stress. *Agriculture* 11(4):285-298.

Note: *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 less/not affected by stress leading to improved resistance (higher the value lesser the damage).
- 3) "0.0" value indicates plant parameter behaved similarly under control and stress condition (no damage).

Inference from the study: Abbas et.al. 2021 studied the interaction of calcium deficiency and drought in three maize cultivars. Plants were subjected to simultaneously two drought conditions; moderate and severe along with calcium deficiency. The number of grains per row, ear weight, 100-grain weight, and grain yield were reduced synergistically under combined stress conditions compared to individual stress. Severe drought resulted in more reduced growth and yield. **Thus, this stress combination is detrimental to all maize cultivars.**