Effect on thale cress ecotype (*Arabidopsis thaliana* cv. Ler, tt4, tt5)

The net impact of individual and combined stress on plant growth

Crop: Thale cress (*Arabidopsis thaliana* cv. Ler, tt4, tt5)
Stress 1: **:** UV-B (12 kJ m^{-2})
Stress 2: Ozone (250 nl l^{-1})
Stage of plant: 14 day old seedling

The table shows the impact of UV-B radition and ozone alone and in combination on the dry weight of thale cress ecotypes.

	Treatment	**Plant response to stress (reduction over control %) Type A parameters***
		Dry weight
Ler	UV-B (12 kJ m-2)	28.8↓
	Ozone (250 nl l^{-1})	5.8↓
	UV-B (12 kJ m-2) + Ozone (250 nl l-1) (2 days later) Sequential stress	50.0↓
tt4	UV-B (12 kJ m-2)	-6.7↑
	Ozone (250 nl l^{-1})	6.7↓
	UV-B (12 kJ m-2) + Ozone (250 nl l-1) (2 days later) Sequential stress	30.0↓
tt5	UV-B (12 kJ m-2)	29.0↓
	Ozone (250 nl l^{-1})	19.4↓
	UV-B (12 kJ m-2) + Ozone (250 nl l-1) (2 days later) Sequential stress	41.9↓

Reference - Ormrod DP , Landry LG, Conklin PL (1995) Short-term UV-B radiation and ozone exposure effects on aromatic secondary metabolite accumulation and shoot growth of flavonoid-deficient Arabidopsis mutants. Physiologia Plantarum 93(4): 602-610.

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

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

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: Ormrod et.al. studied the interaction of UV-B irradiation and ozone in three ecotypes of thale cress; Landsberg, tt4 and tt5. Stress was given singly and sequentially. Dry weight was observed to reduce synergistically under combined stress treatment compared to individual stress in all three cultivars. **Thus, this stress combination is detrimental to the thale cress.**