

## Effect on tomato (*Solanum lycopersicum*) cultivars

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

**The table shows the effect of combined nutrient deficiency and toxicity on growth and physiology of tomato cultivars**

**Crop:** Tomato (*Solanum lycopersicum*) cultivar Robin and Garbo  
**Stress 1:** Full nutrient solution (control), 20-fold diluted nutrient solution (DNS); plants grown on 1/20 P in nutrient solution for 6 weeks (low P)  
**Stress 2:** dark chilling treatment at 1-5°C  
**Stage of the plant:** Fruiting

Cultivars	Stress treatments	Plant response to stress		
		Type B parameter*		
		Net photosynthetic rate ( $\mu\text{mol}/\text{m}^2/\text{s}$ )**	Stomatal conductance ( $\mu\text{mol H}_2\text{O}/\text{s}/\text{m}^2$ )**	Intercellular CO <sub>2</sub> concentration ( $\text{cm}^3/\text{m}^3$ )**
Robin	FNS + chilling	7.20	66.7	178
	DNS + no chilling	6.31	92	253
	DNS + chilling	3.25	41.5	259
Garbo	FNS + chilling	10.8	140.7	206.4
	DNS + no chilling	8.51	241.7	287.3
	DNS + chilling	4.04	81.2	220.5

*DW*- dry weight, *a*- unit  $\mu\text{mol CO}_2 \text{ mol}^{-1} \text{ air}$ , *FNS*-Full nutrient solution, *DNS*- diluted nutrient solution, *Control*; Robin- Net photosynthetic rate -13.45, Stomatal conductance -216.5, Intercellular CO<sub>2</sub> concentration- 208, Garbo I Net photosynthetic rate - 11.07, Stomatal conductance -303.1, Intercellular CO<sub>2</sub> concentration- 273.1.

**For raw data** – Click here (.xlsx file)

### Reference-

Starck Z, Niemyska B, Bogdan J and Tawalbeh R (2000). Response of tomato plants to chilling stress in association with nutrient or phosphorus starvation. *Plant and Soil* 226(1), 99-106.

### Note:

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

\*\*'-Values are presented as it is from the source article without subjecting to the calculation.

**The inference from the study:** Starck et al. 2000 assessed the effect of mineral starvation on the physiology of tomato cultivars Garbo and Robin. The authors found that a combination of mineral starvation (by growing plants in 20X diluted nutrient solution) and chilling brought about more significant reductions in physiological parameters in both the cultivars. The cultivar Garbo was found to be more resilient to both the individual and combined stress conditions as compared to Robin.