Effect on wheat cultivars (*Triticum aestivum* cv. Jimai 17, Yannong19)

The net impact of individual and combined stress on plant growth

Crop: Wheat (*Triticum aestivum* cv. Jimai 17, Yannong19)
Stress 1: Wounding (20% damage)
Stress 2: Cold (5°C less than ambient temperature)
Stage of plant: Growth stage 26

The table shows the effect of wounding and cold temperature alone and in combination on the rubisco activity, rubisco activation, H_2O_2 concentration and O_2 release rate of wheat cultivars

	Treatment	Plant response to stress (reduction over control %) Type B parameters*			Plant response to stress (reduction over control %) Type C parameters*
		Total Rubisco activity	Rubisco activation	O_2 release rate	H_2O_2 concentration
YN19	Cold (5°C less than ambient temperature)	7.4↓	5.0↓	-70.0↑	-60.0↑
	Wounding (20% damage) + Cold (5°C less than ambient temperature) (Simultaneous stress)	5.8↓	2.3↓	-32.5↑	0.0
	Wounding (20% damage) + Cold (5°C less than ambient temperature) (6 days later) (Sequential stress)	20.6↓	6.4↓	-167.5↑	-100.0↑
LM6	Cold (5°C less than ambient temperature)	14.0↓	4.1↓	-121.6↑	-52.6↑

	Wounding (20% damage) + Cold (5°C less than ambient temperature) (Simultaneous stress)	8.0↓	3.2↓	-73.0↑	-8.8↑
	Wounding (20% damage) + Cold (5°C less than ambient temperature) (6 days later) (Sequential stress)	24.7↓	6.5↓	-227.0↑	-140.4↑

Reference - Li X, Hao C, Zhong J, Liu F, Cai J, Wang X, Zhou Q, Dai T, Cao W, Jiang D (2015) Mechano-stimulated modifications in the chloroplast antioxidant system and proteome changes are associated with cold response in wheat. BMC Plant Biol. 15:219-222.

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).
3) "0.0" value indicates plant parameter behaved similarly under control and stress condition (no damage).

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

Inference from the study: Li et al. 2015 studied the interaction of wounding and cold temperature in two wheat cultivars YN19 and LM6. Plants were subjected to single, simultaneous, and sequential wounding and cold temperature stress treatment. Total rubisco activity and rubisco activation decreased synergistically under combined stress in both cultivars. However, H2O2 concentration and O2 release rate showed an overall increase under combined stress conditions. **Thus, this stress combination alters the biochemical composition of wheat cultivars.**