

## Effect on wheat (*Triticum aestivum*) cultivars

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

**The table shows the effect of combined boron deficiency on growth and physiology of wheat cultivars**

**Crop:** Wheat (*Triticum aestivum*) cultivars SW41 and Wilgoyne  
**Stress 1:** 0  $\mu\text{M}$ (-B) and 10  $\mu\text{M}$  (+B)  $\text{H}_3\text{B}_3$   
**Stress 2:** Reproductive stage experiment-The night temperature treatments were ambient glasshouse temperature ( $> 10^\circ\text{C}$ ) and low temperature ( $> 5^\circ\text{C}$ )  
 Vegetative stage experiment-  $5^\circ\text{-}15^\circ\text{C}$

Cultivars	Stress treatments	Plant response to stress		
		Type A parameter*	Type B parameter*	Type C parameter*
		Elongation rate of leaf blade (cm/d) 4-5 DAST **	$\text{K}^+$ leakage ( $\mu\text{g K}^+/\text{g FW}$ ) 12 DAST	Boron content (mg/g dry matter) 12 DAST**
SW41	Boron deficiency + OT	5.3	189	3.13
	Boron deficiency + LT	4.4	187	2.44
	Boron + OT	5.8	164	9.27
	Boron + LT	4.4	177	7.64
Wilgoyne	Boron deficiency + OT	7.9	273	1.26
	Boron deficiency + LT	8.5	270	0.89
	Boron + OT	8.4	251	4.36
	Boron + LT	9.2	274	4.07

*OT-Optimal temperature, LT- low temperature, DAST- days after stress treatment, LAC%- percentage of grain-set florets out of the total number of florets of an ear (method used by Lumle Agricultural Research Centre (LAC), a-at spikelet position 16, FW- fresh weight, Control values not available*

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

### Reference-

Huang L, Pant J, Bell RW, Dell B and Deane K (1996) Effects of boron deficiency and low temperature on wheat sterility, in: Rawson, H.M., Subedi, K.D., (Eds.), *Sterility in Wheat in Sub-tropical Asia: Extent, Causes and Solutions*. Australian Centre for International Agricultural Research, Canberra, 91-102.

### 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:** Huang et al., 1996 studied the effect of boron deficiency on wheat cultivars Wilgoyne and SW41 at vegetative and reproductive stages, respectively. Authors found that during the reproductive stage in SW41, boron deficiency at low temperatures increased the

spikelet fertility and resulted in higher grain set index. Low temperature reduced the elongation rate of the seventh and ninth leaf blade in Wilgoyne and SW41, respectively, irrespective of boron concentration. However, the reductions were not significant. Boron deficiency enhanced potassium leakage from plants, and the low temperature had no effect on this parameter. It was also found that the reproductive and vegetative stage differed in sensitivity to Boron deficiency and requirement, and combined boron deficiency and the low temperature had less detrimental effects on wheat reproductive and vegetative stages than the individual stresses.