

Figure S1. Setups for the waterlogging stress (a), control/salt stress (b), and heat stress (c) experiments.

Control (CK)			Waterlogging (WL)			Salt Stress (SS)			Heat Stress (HS)			Combined Stress (CS)		
					N = 130 kg ha ⁻¹ (SCU, RT = 120 days)			N = 130 kg ha ⁻¹ (SCU, RT = 120 days)		N = 130 kg ha ⁻¹ (SCU, RT = 120 days)		N = 130 kg ha ⁻¹ (SCU, RT = 120 days)		
	N = 130 kg ha ⁻¹ (SCU, RT = 120 days)			P = 114 kg ha ⁻¹			P = 114 kg ha ⁻¹		P = 114 kg ha ⁻¹		P = 114 kg ha ⁻¹		P = 114 kg ha ⁻¹	
	P = 114 kg ha ⁻¹			K = 62 kg ha ⁻¹			K = 62 kg ha ⁻¹		K = 62 kg ha ⁻¹		K = 62 kg ha ⁻¹		K = 62 kg ha ⁻¹	
	K = 62 kg ha ⁻¹			M.C. = 85-100 %			NaCl = 15 mM		Temperature (max) = 33 °C		All Stresses			
				(Germination Stage)			(Jointing Stage)		(Flowering Stage)		(Same Stages)			
R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3
Plot 1			Plot 2			Plot 3			Plot 4			Plot 5		

Figure S2. Schematic representation of the experimental design.

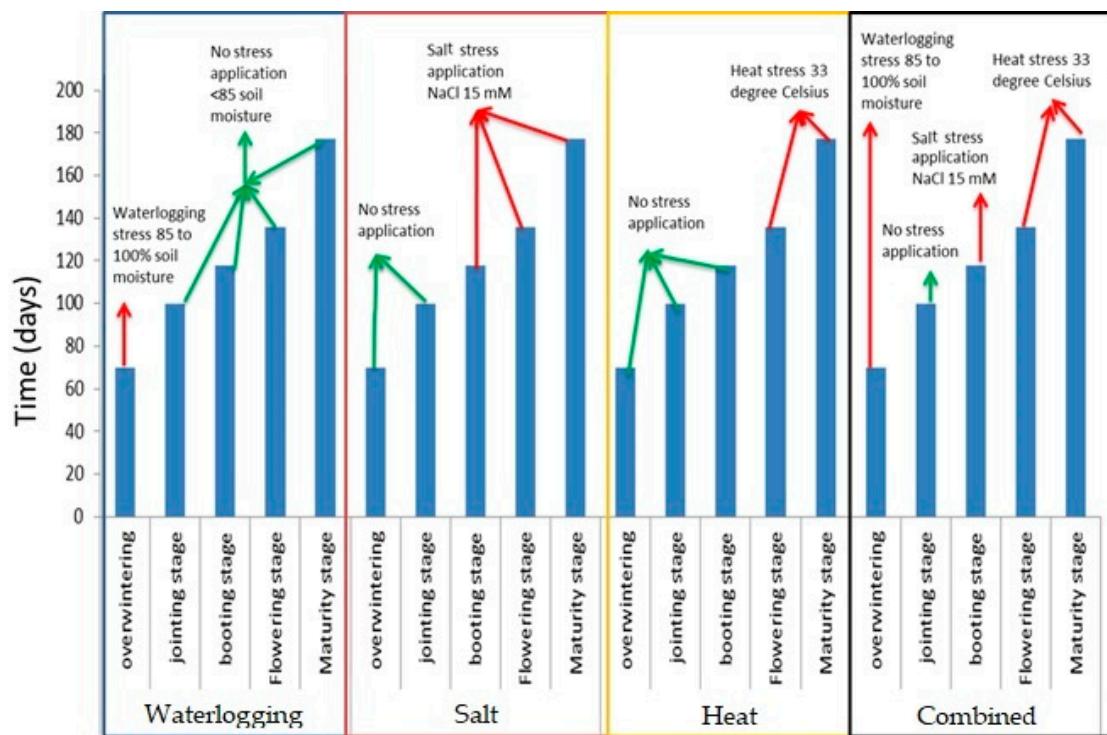


Figure S3. Time bar graph of the whole study.

Table S1. Photosynthetic attributes of the wheat plant grown under different stress conditions (Flowering Stage (FS) / Flag Leaf).

Florescence	Fv/Fm	
(Treatment Date)	(4/15/2021)	(4/22/2021)
Control	0.794 ± 0.01	0.823 ± 0.04
Waterlogging	0.785 ± 0.08	0.790 ± 0.05
Salt Stress	0.814 ± 0.03	0.809 ± 0.08
Combine Stress (WL + SS)	0.789 ± 0.04	0.794 ± 0.09
Photo	Photosynthetic rate ($\mu\text{mol CO}_2 \text{ m}^{-2} \text{ s}^{-1}$)	
Control	14.583 ± 1.3	15.659 ± 1.1
Waterlogging	15.386 ± 1.1	16.522 ± 2.01
Salt Stress	16.340 ± 1.2	17.546 ± 1.3
Combined Stress (WL + SS)	14.666 ± 1.3	15.748 ± 1.2
Cond	Stomatal Conductance to H ₂ O (mol H ₂ O m ⁻² s ⁻¹)	
Control	0.203 ± 0.01	0.232 ± 0.02
Waterlogging	0.186 ± 0.01	0.212 ± 0.01
Salt Stress	0.180 ± 0.01	0.206 ± 0.01
Combined Stress (WL + SS)	0.162 ± 0.02	0.185 ± 0.02
Ci	Intercellular CO ₂ concentration ($\mu\text{mol CO}_2 \text{ mol}^{-1}$)	
Control	262.726 ± 5.9	272.731 ± 4.5
Waterlogging	252.440 ± 2.9	262.053 ± 3.2
Salt Stress	237.549 ± 3.7	246.595 ± 3.4
Combined Stress (WL + SS)	238.138 ± 4.3	247.206 ± 6.2
Trmmol	Transpiration rate (mmol H ₂ O m ⁻² s ⁻¹)	
Control	3.554 ± 0.1	3.588 ± 0.1
Waterlogging	3.303 ± 0.2	3.334 ± 0.2
Salt Stress	3.232 ± 0.2	3.263 ± 0.1
Combined Stress (WL + SS)	2.900 ± 0.1	2.927 ± 0.3
WUE	Water Use Efficiency ($\mu\text{mol CO}_2 \text{ m}^{-2} \text{ s}^{-1} / \text{mmol H}_2\text{O m}^{-2} \text{ s}^{-1}$)	
Control	4.103 ± 0.1	4.364 ± 0.1
Waterlogging	4.658 ± 0.1	4.955 ± 0.2
Salt Stress	5.055 ± 0.2	5.377 ± 0.3
Combined Stress (WL + SS)	5.057 ± 0.3	5.380 ± 0.2

Reported values are the mean of triplicates and standard deviation where n=3.

Table S2. Properties of the soil used in the study.

Soil Texture	Sandy Clay-Loam
Sand (%)	55.9
Silt (%)	19.9
Clay (%)	24.2
CaCO_3 (%)	7.21
pH	7.75
EC (dS m^{-1})	1.57
Organic matter (%)	0.31
Total N (%)	0.021
K_2O (kg da^{-1})	70.70
P_2O_5 (kg da^{-1})	3.85
Ca (mg kg^{-1})	21.88