

Table S1 Soil physical properties of the studied soils before treatment application.

Soil Depth (cm)	Particle size distribution (%)			Texture class	O.M(%)	CaCO ₃ (%)	Water constants (%)		
	Sand	Silt	Clay				FC	WP	AW
0-30	22.6	32.6	44.8	Clay	1.48	2.52	41.9	21.9	20.0
30-60	14.7	33.2	52.1	Clay	1.38	2.33	42.3	18.0	24.3
60-90	11.7	37.1	51.2	Caly	1.12	2.17	39.2	17.9	21.3

FC: field capacity; WP: wilting point; AW: available water; OM: organic matter

Table S2 Soil chemical properties of the studied soils before treatment application.

Soil depth (cm)	pH (1:2.5)	EC (soil paste extract, dS/m)	SAR	Cations (meq l ⁻¹)				Anions (meq l ⁻¹)				Macroelements (mg kg ⁻¹)		
				Na ⁺	K ⁺	Ca ⁺²	Mg ⁺²	CO ₃ ⁻²	HCO ₃ ⁻	Cl ⁻	SO ₄ ⁻²	N	P	K
0-30	7.12	3.18	9.13	21.2	0.7	6.5	2.2	0	2	18	12.8	62	10.71	249
30-60	8.25	4.53	11.28	30.8	0.9	9.5	5.4	0	3.5	24	19.1	48	9.93	241
60-90	8.39	5.22	12.07	35.5	1.2	11	6.3	0	5.5	27	21.5	35	8.54	206

Table S3 The detailed chemical and nutritional analysis of the used compost, according to [28].

<i>Characteristics</i>	<i>Values</i>
Dry weight (kg m ⁻³)	650.0
Moisture content (%)	26.80
Odour and colour	Acceptable and dark
pH (1:10 compost-water suspension w/v)	7.16
EC (1:5 compost – water extraction w/v, dS/m)	4.76
Saturation percentage % (g/100g)	175.0
CEC (cmole kg ⁻¹)	64.34
Total organic – c %	25.5
Total organic matter %	43.96
C/N ratio	16.64
Total macro-nutrients %	
Total – nitrogen %	1.79
Total – phosphorus %	1.68
Total – potassium %	1.28
Available macro-nutrients (mg kg ⁻¹ compost)	
Available – N (potassium sulfate)	706
Available – P (0.5 M NaHCO ₃ - pH 8.5)	50
Available – K (ammonium acetate pH 7)	85
Available micro-nutrients (mg kg ⁻¹ compost)	
Available – Fe	450
Available – Mn	100
Available – Zn	35
Available – Cu	135
Total micro-nutrients (mg kg ⁻¹ compost)	
Total –Fe	753
Total – Mn	361
Total – Zn	297
Total – Cu	168
Available heavy metals (mg kg ⁻¹ compost)	
Available – Cd	13.2

Available – Ni	62.7
Available – Pb	120

Table S4 Main effects of planting dates, irrigation and fertilization on wheat grain and biomass yields (data represent the average of two seasons).

Levels	Grain Yield, Kg ha ⁻¹			Total biomass, kg ha ⁻¹		
	Planting dates	Irrigation	Nitrogen	Planting dates	Irrigation	Nitrogen
1	6100.2	6488.7	4444.9	12369.6	12740.9	9037.2
2	6763.5	6750.5	7422.4	13577.3	13544.5	14943.4
3	6427.4	6051.9	7052.1	12255.4	11916.9	13893.3
4			6802.1			13062.5
F-test	225.14	254.93	2788.72	99.0	122.3	922.9
L.S.D 0.05	**	**	**	**	**	**

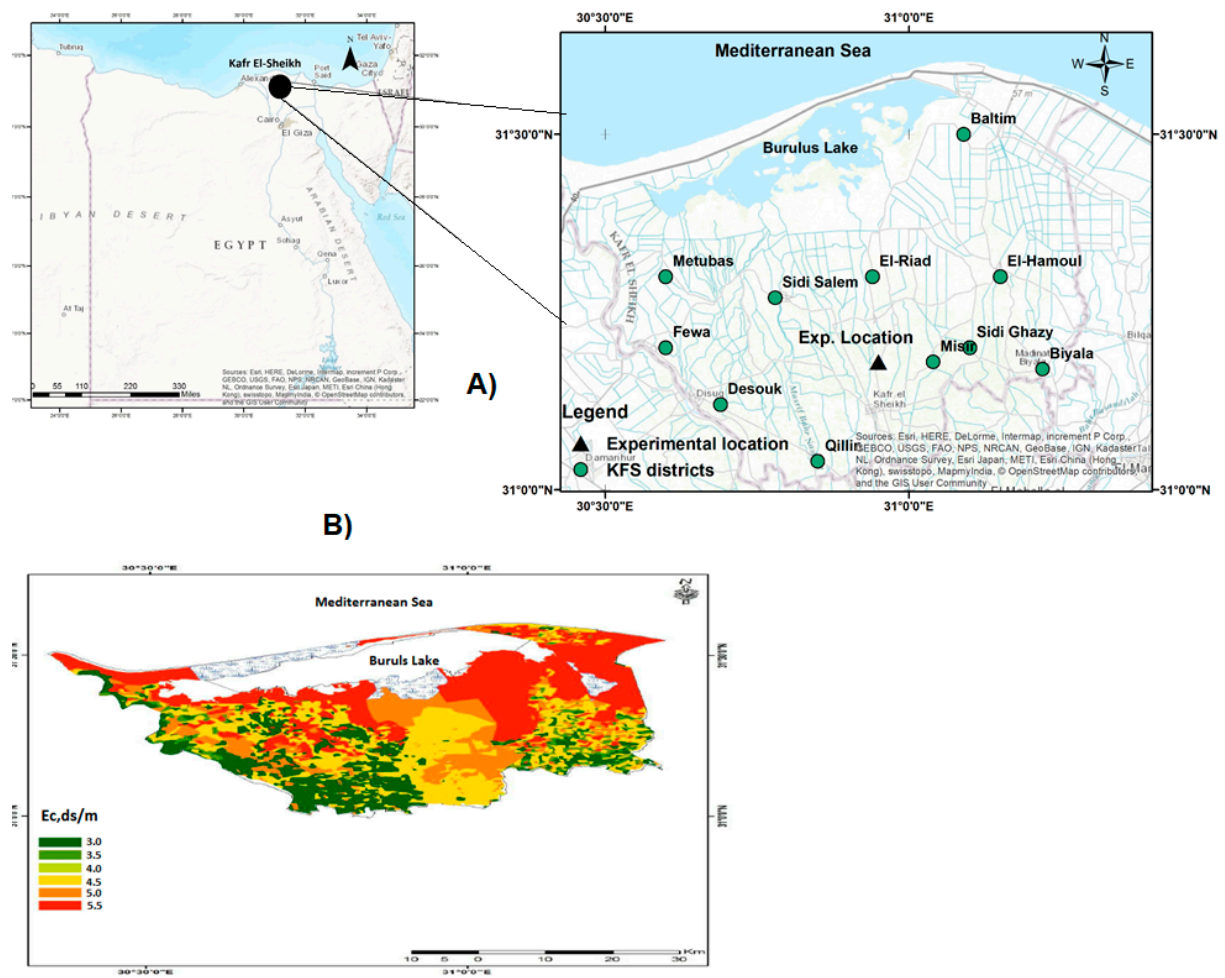


Figure S1. Map of the studied area at River Nile North delta, Kafr El- Sheikh Governorate (A) and its soil salinity of the effective root zone (B).

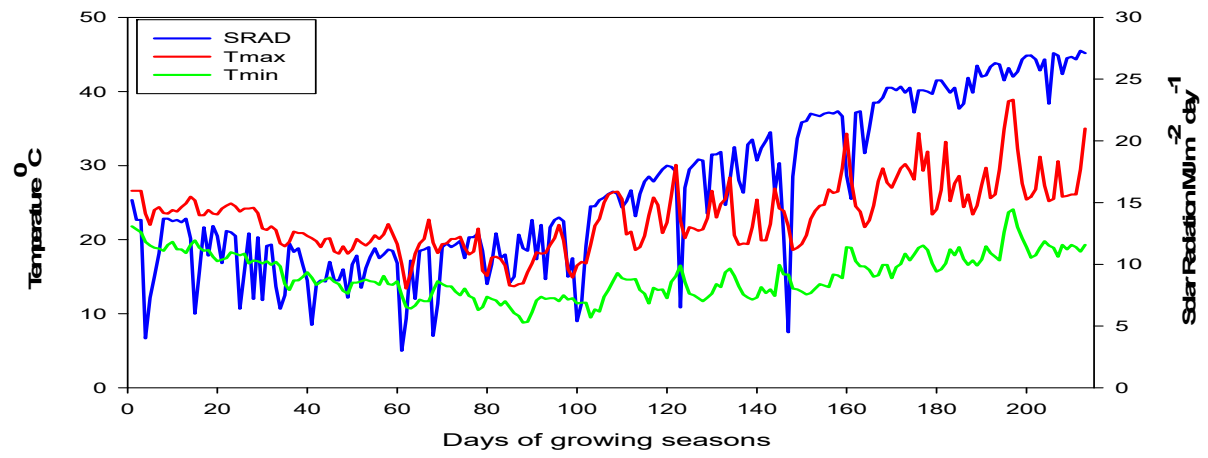


Figure S2. Daily maximum and minimum temperature (°C) and solar radiation (MJ m⁻² day⁻¹) data of Sakha as average of two growing seasons 2014/2015 and 2015/2016.

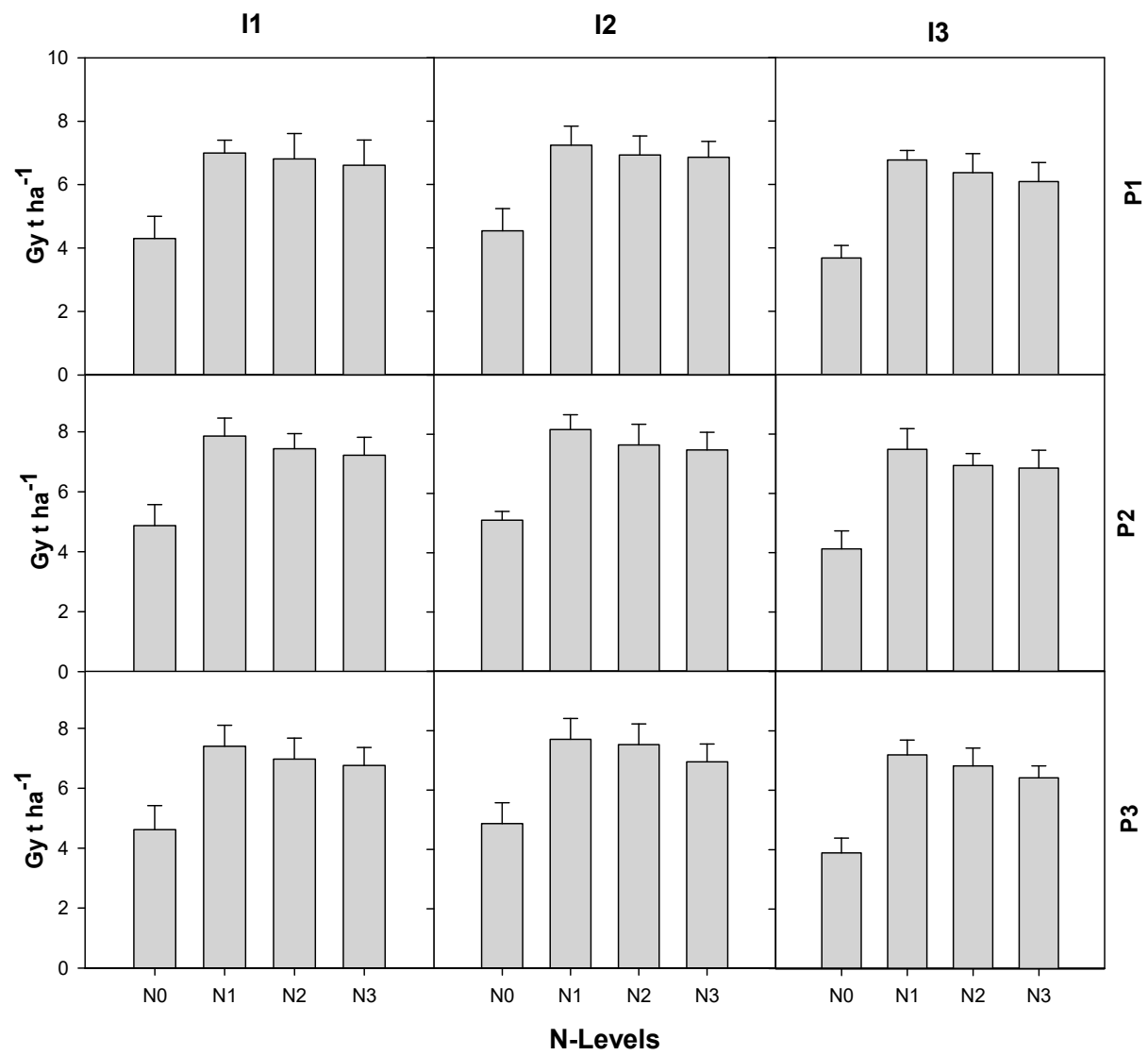


Figure S3. Wheat grain yield as affected by irrigation, fertilization and planting dates (data represent the average of both seasons).

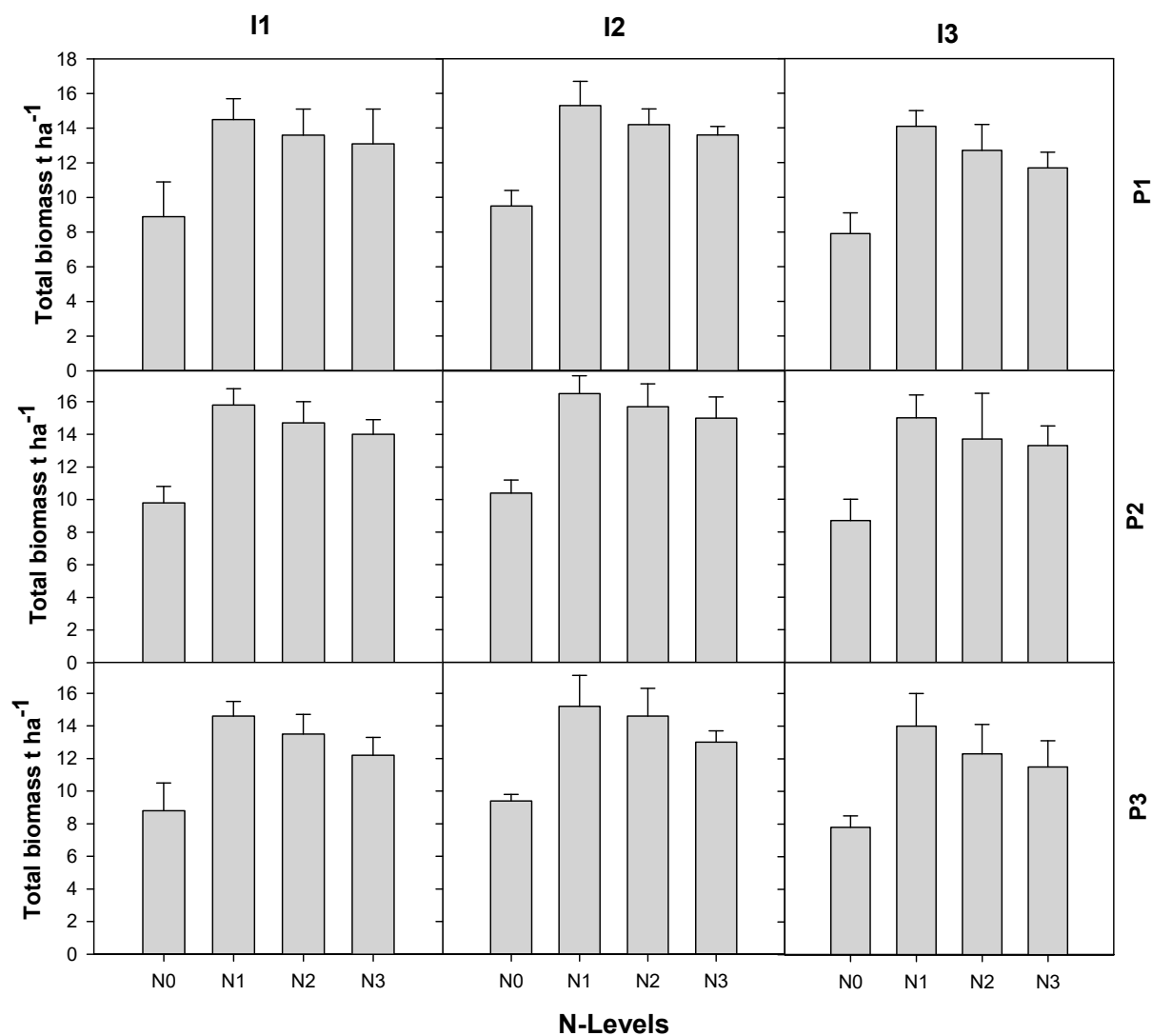


Figure S4. Final above ground biomass of wheat (t ha^{-1}) as affected by irrigation, fertilization and planting dates, (data represent the average of both seasons).

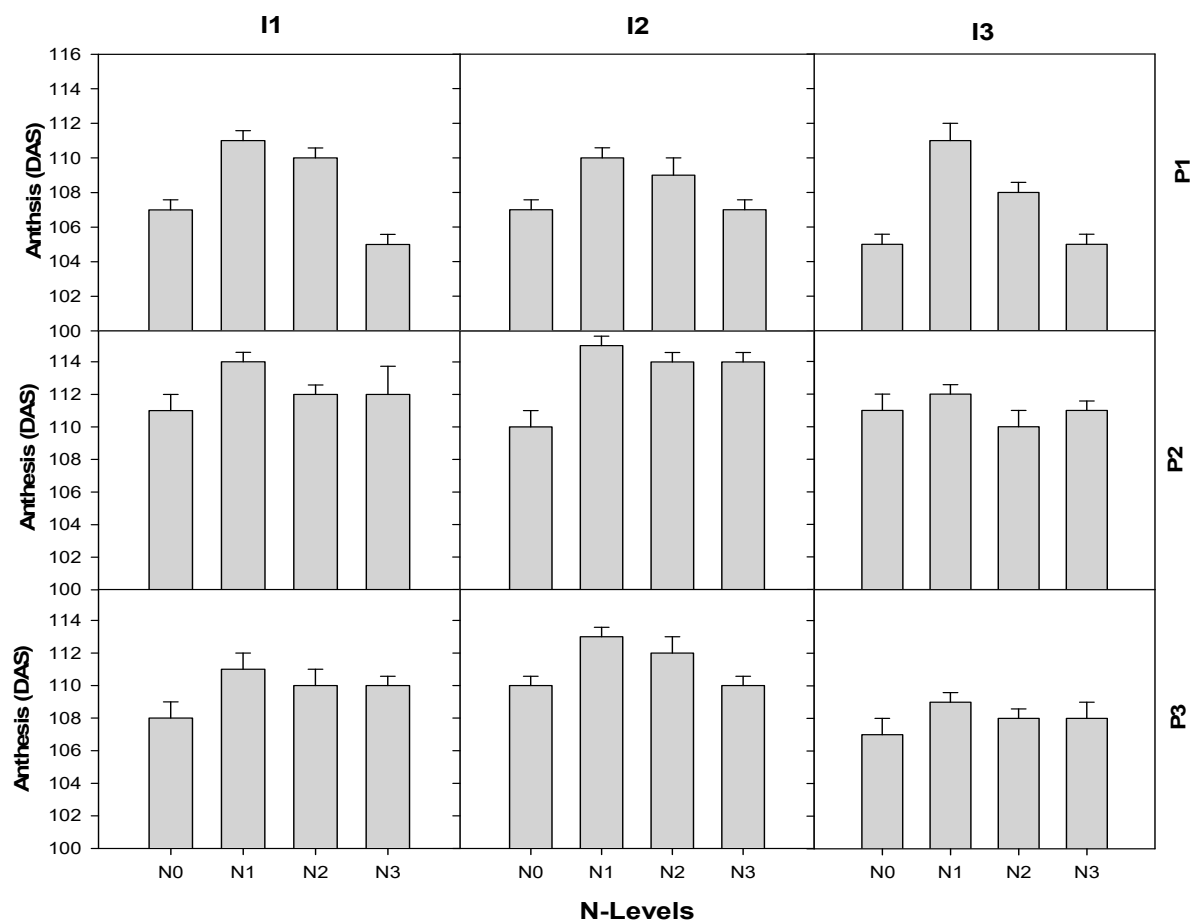


Figure S5. Anthesis date (DAS) as affected by irrigation, fertilization and planting dates (data represent the average of both seasons).

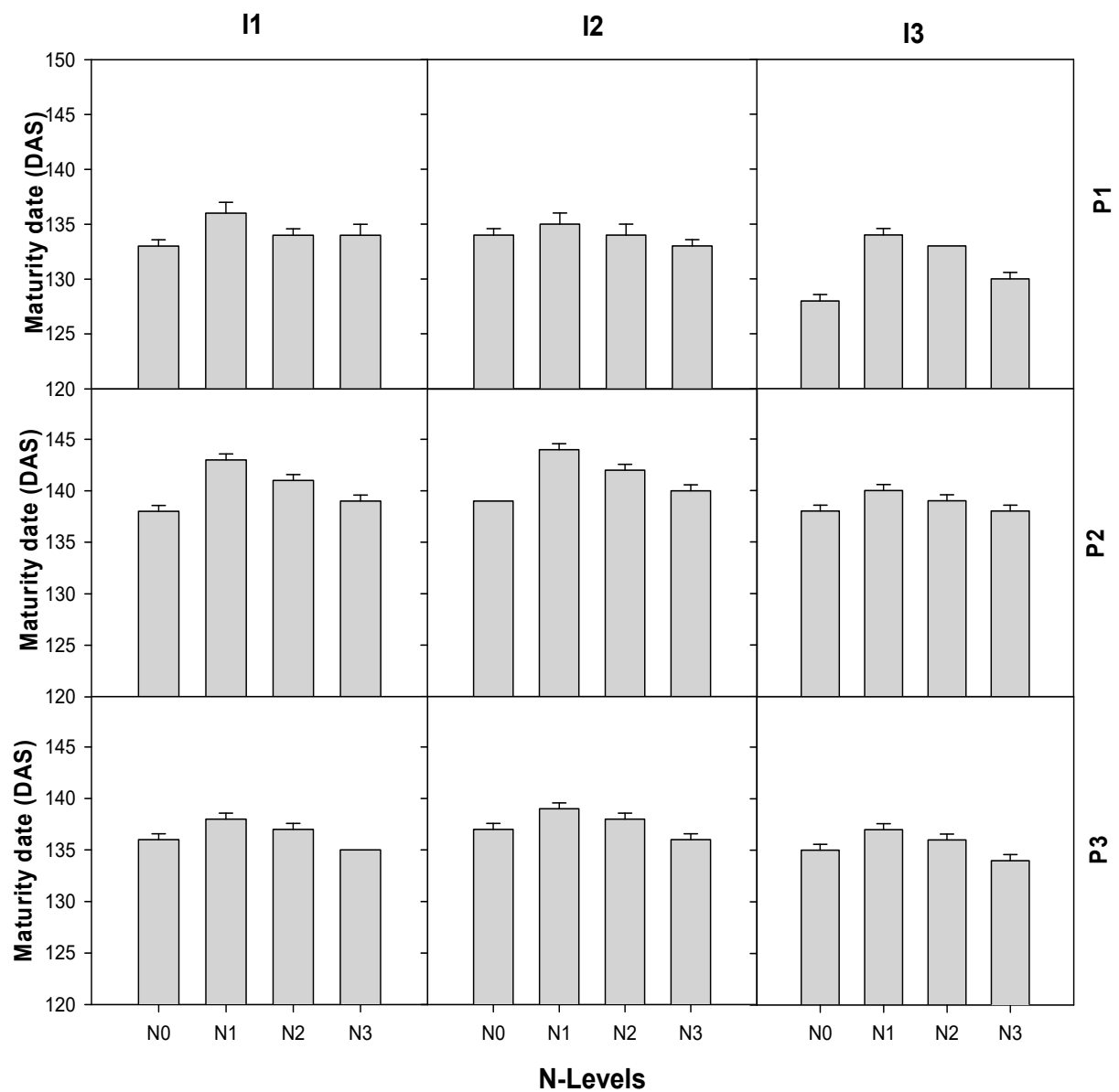


Figure S6. Maturity date (DAS) as affected by irrigation, fertilization and planting dates (data represent the average of both seasons).

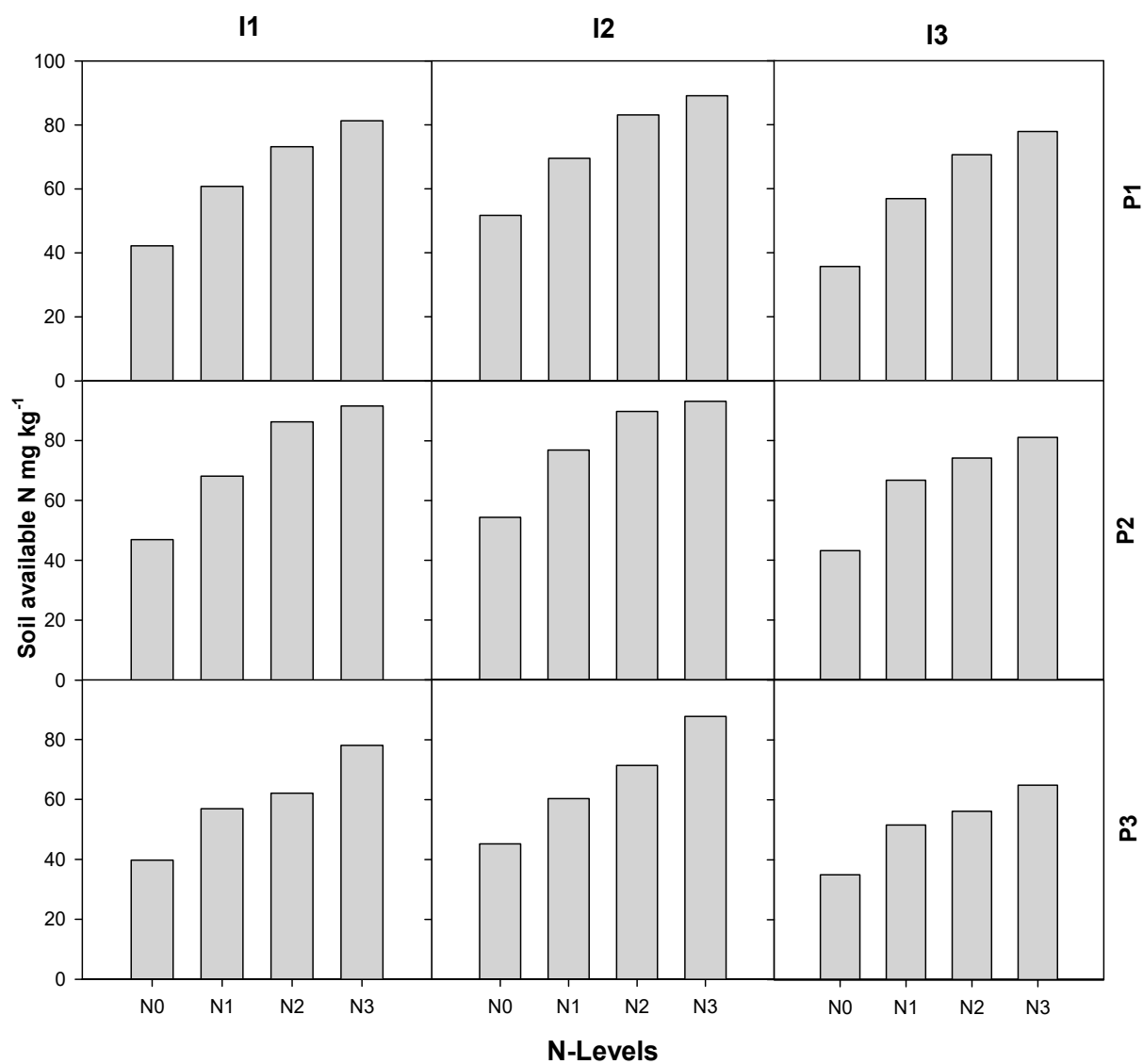


Figure S7. Soil available mineral N remained in soil after wheat crop harvest (data represent the average of both seasons).

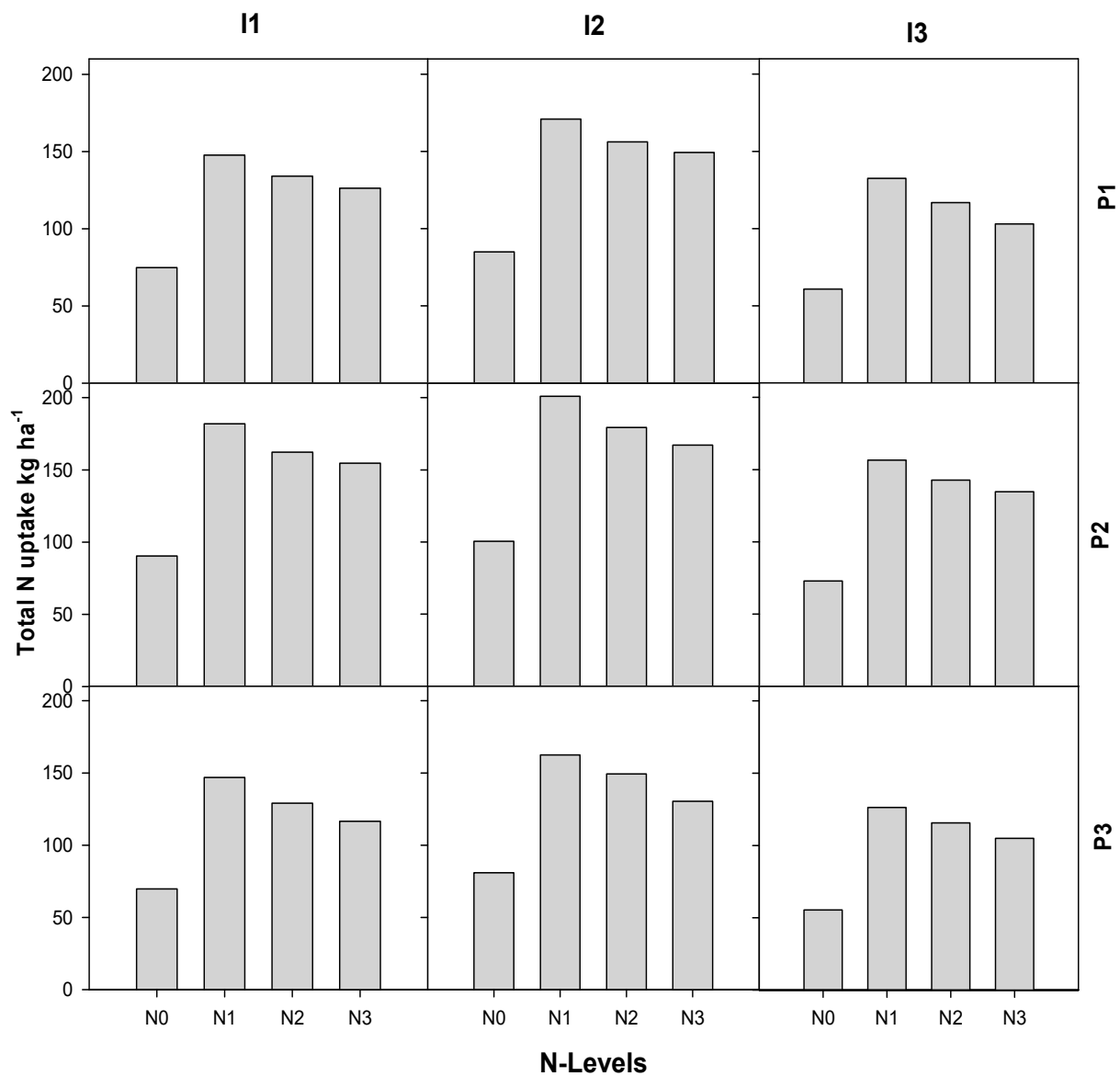


Figure S8. Total N uptake in whole wheat under different treatments (data represent the average of both seasons).

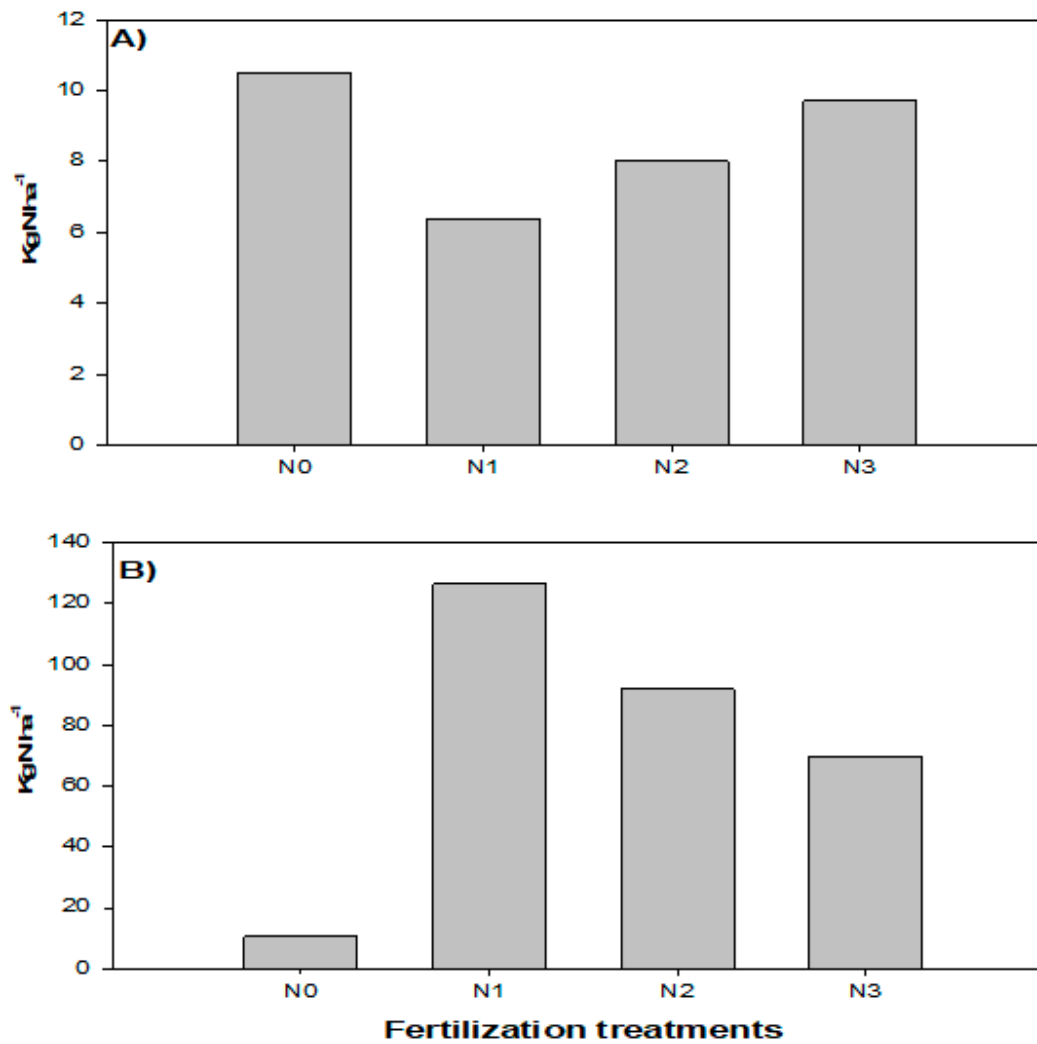


Figure S9. The added mineral N to the soil from compost (A) and both compost and mineral nitrogen fertilization (B) under different treatments.

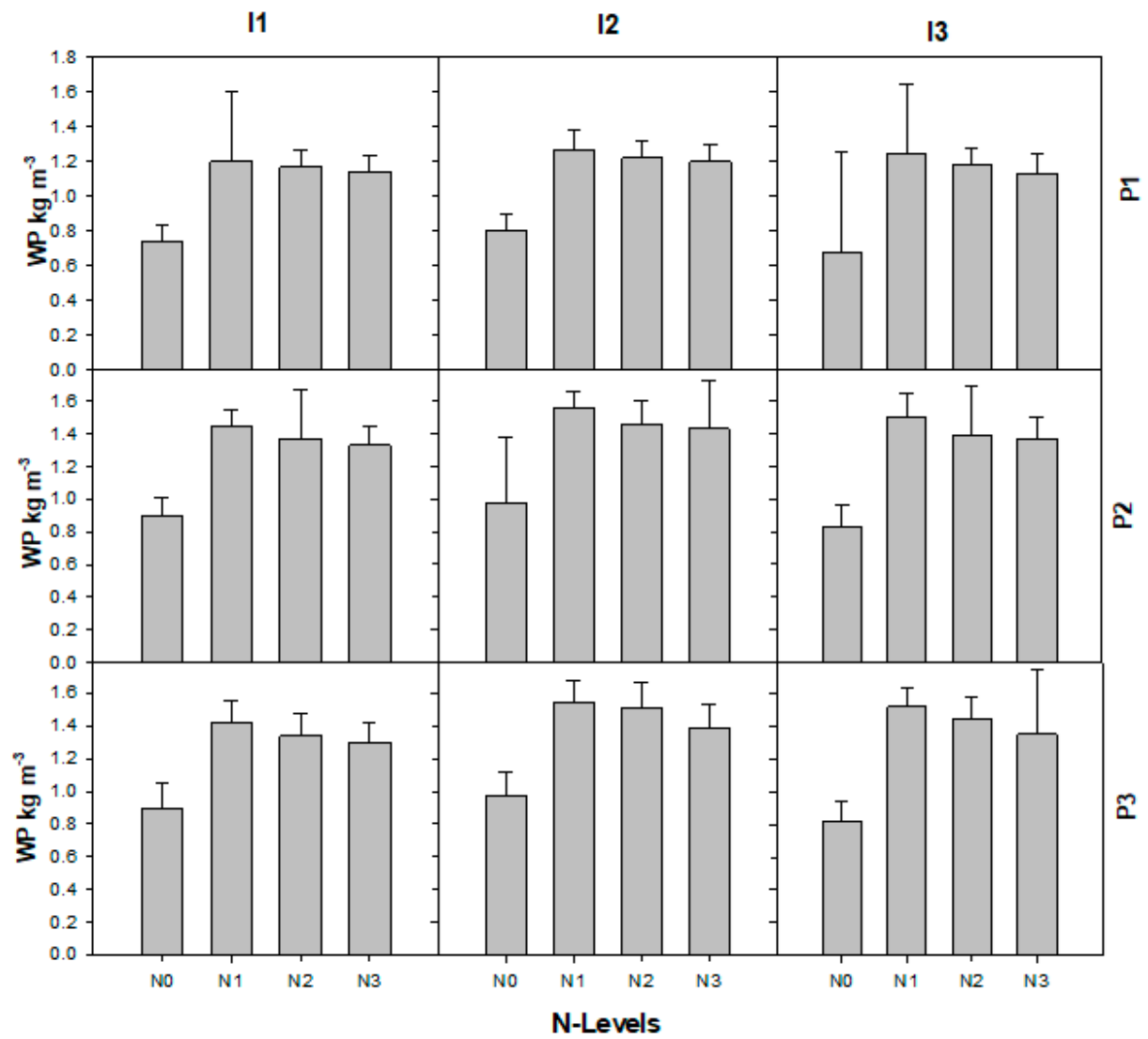


Figure S10. Effects of irrigation, fertilization, and planting dates on Wheat WP(data represent the average of both seasons).

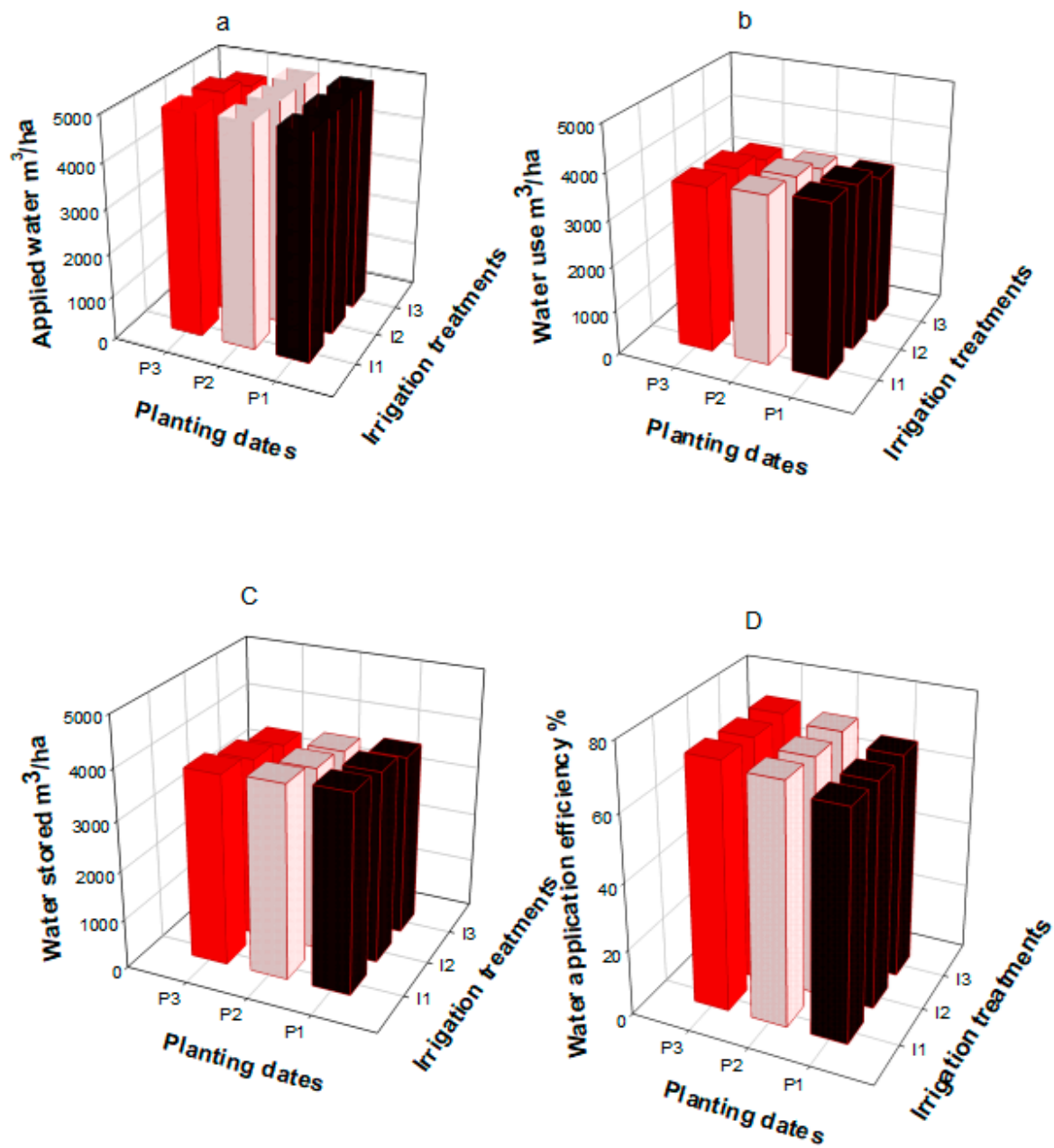


Figure S11. Wheat water applied (a), use (b), stored(c) and application efficiency (d) as affected by irrigation and planting dates.