

Table (3): Effect of soil compaction with different strengths and polyacrylamide (PAM) application rates on some maize root parameters and nutrient N, P, and K contents in shoot and root maize grown in the investigated soils.

Treatments	Root fresh weight (g)			Root length (cm)			Total root length (cm)	Root length density (cm g ⁻³)	Specific root length (cm g ⁻¹)	N (%)		P (%)		K (%)	
	First layer	Second layer	Third layer	First layer	Second layer	Third Layer				Shoot	Root	Shoot	Root	Shoot	Root
CS0.0PAM0.00	3.49 ^b	1.86 ^{ab}	1.18 ^{ab}	191.33 ^{ab}	127.10 ^a	106.63 ^b	367.27 ^{ab}	0.27 ^{ab}	262.82 ^{ab}	2.00 ^{bc}	0.54 ^{ac}	0.14 ^a	0.07 ^{ab}	2.78 ^b	3.53 ^b
CS2.5PAM0.00	3.61 ^b	1.96 ^{ab}	0.72 ^{bcd}	182.36 ^b	105.04 ^b	83.84 ^c	293.06 ^c	0.26 ^b	283.92 ^{ab}	2.02 ^{bc}	0.47 ^{ac}	0.12 ^b	0.08 ^{ab}	2.29 ^{bc}	2.75 ^c
CS2.5PAM0.25	3.16 ^{bcd}	2.04 ^a	0.60 ^{cd}	146.56 ^{cd}	110.40 ^b	81.38 ^c	339.94 ^b	0.25 ^b	286.79 ^{ab}	2.32 ^b	0.55 ^{ac}	0.13 ^{ab}	0.08 ^{ab}	2.43 ^{bc}	2.68 ^c
CS2.5PAM0.50	4.66 ^a	2.09 ^a	1.34 ^a	201.88 ^a	133.45 ^a	120.37 ^a	393.03 ^a	0.29 ^a	412.89 ^a	2.07 ^{bc}	0.66 ^{ac}	0.14 ^a	0.09 ^a	3.28 ^a	3.95 ^a
CS2.5PAM1.00	2.86 ^b	2.07 ^a	0.47 ^{de}	151.90 ^c	82.43 ^c	57.70 ^d	354.69 ^b	0.25 ^b	247.83 ^b	2.62 ^a	0.36 ^{ac}	0.11 ^b	0.07 ^b	2.29 ^{bc}	3.50 ^b
CS4.5PAM0.00	1.51 ^c	0.96 ^d	1.16 ^{ab}	130.91 ^d	79.77 ^c	16.88 ^e	269.61 ^c	0.21 ^c	201.17 ^b	1.72 ^c	0.71 ^{ac}	0.10 ^c	0.06 ^b	2.19 ^c	1.63 ^d
CS4.5PAM0.25	2.64 ^d	1.21 ^{cd}	1.00 ^{abc}	154.35 ^c	78.64 ^c	55.36 ^d	288.35 ^c	0.21 ^c	226.48 ^b	2.19 ^{bc}	0.59 ^{ac}	0.13 ^{ab}	0.07 ^b	2.28 ^{bc}	1.66 ^d
CS4.5PAM0.50	3.31 ^{bc}	1.46 ^{bc}	0.82 ^{bcd}	133.32 ^d	65.12 ^c	65.55 ^d	342.57 ^b	0.20 ^c	280.34 ^{ab}	2.11 ^{bc}	0.43 ^{ac}	0.13 ^{ab}	0.07 ^b	2.33 ^{bc}	2.95 ^c
CS4.5PAM1.00	2.55 ^d	1.75 ^{ab}	0.17 ^e	129.00 ^d	62.20 ^c	56.52 ^d	261.44 ^c	0.19 ^c	345.04 ^{ab}	2.02 ^{bc}	0.50 ^{ac}	0.13 ^{ab}	0.07 ^{ab}	2.19 ^c	1.94 ^d
LSD 0.05	0.46	0.37	0.33	15.17	15.64	12.12	27.26	0.02	100.92	0.29	NS	0.01	0.01	0.34	0.36
Soil type															
Clayey soil	3.67 ^a	2.55 ^a	1.30 ^a	196.78 ^a	133.85 ^a	112.05 ^a	442.68 ^a	0.32 ^a	346.64 ^{ac}	2.19 ^{ac}	0.48 ^{ac}	0.13 ^{ac}	0.07 ^b	2.54 ^{ac}	2.76 ^{ac}
Clay loam soil	2.50 ^b	0.88 ^b	0.35 ^b	119.13 ^b	53.74 ^b	31.11 ^b	203.98 ^b	0.15 ^b	219.42 ^{ac}	2.05 ^{ac}	0.58 ^{ac}	0.13 ^{ac}	0.08 ^a	2.37 ^{ac}	2.71 ^{ac}
LSD 0.05	0.04	0.2	0.22	12.97	21.76	2.26	12.83	0.01	NS	NS	NS	NS	0.01	NS	NS
Interaction															
Soil (S)	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	NS	NS	NS	NS	Sig.	NS	NS
Treatments (T)	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	NS	NS	Sig.	Sig.	Sig.	Sig.
S×T	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.

Three compaction forces (CS) CS0(0.9Kg rammer), CS2.5(2.5Kg rammer), CS4.5(4.5Kg rammer),Four polyacrylamide (PAM) levels (0.00,0.25,0.50,1.00g PAM L⁻¹).