

Table S1: The average GY and quality parameters of maize grain in different years and soil tillage systems

Year	Tillage system	GY (t ha ⁻¹)	Proteins (%)	Starch (%)	Oil (%)	Carot (µg g ⁻¹)	Tocopher. (µg g ⁻¹)	Pi (mg g ⁻¹)	GSH (nmol g ⁻¹)	Phenols (µg g ⁻¹)	Phy (mg g ⁻¹)
2016	T1	914b	9.28a	72.04ab	4.77a	32.58d	45.64a	0.34ab	2930.6a	357.0a	2.98c
	T2	8.80bc	8.67b	72.98a	4.49b	35.56bc	40.88ab	0.36a	3006.2a	370.10a	3.10c
	T3	11.82a	9.75a	71.17b	4.16c	36.17bc	44.10ab	0.35a	3041.2a	299.82ab	3.40b
2017	T1	2.08e	9.32a	70.94b	3.65e	29.24e	39.29b	0.35ab	2115.5c	174.32bc	3.35bc
	T2	2.86e	8.60b	71.43b	3.82d	27.62e	44.64ab	0.35a	1759.3d	137.17c	3.74a
	T3	5.49d	9.40a	70.32b	3.72ed	29.48e	43.07ab	0.32b	1813.6d	135.03c	3.60ab
2018	T1	7.33cd	8.85ab	72.84a	3.97cd	37.87b	46.10ab	0.35a	2662.3b	281.72ab	3.20bc
	T2	8.20c	8.89ab	72.61ab	3.95cd	35.44c	47.54a	0.36a	2721.4ab	229.09b	3.27bc
	T3	10.27b	9.15ab	71.98ab	3.84d	41.27a	39.07b	0.31b	2814.3ab	324.11a	3.22bc
LSD _{0.05}		1.509	0.567	1.057	0.1673	1.782	5.396	0.0294	246.5	74.25	0.2265

Values with the same letters within each column are not statistically different at $p < 0.05$

Table S2: The average GY and quality parameters of maize grain in different years and fertilizer rates

Year	Fertiliser rates	GY (t ha ⁻¹)	Proteins (%)	Starch (%)	Oil (%)	Carot (µg g ⁻¹)	Tocopher. (µg g ⁻¹)	P _i (mg g ⁻¹)	GSH (nmol g ⁻¹)	Phenols (µg g ⁻¹)	Phy (mg g ⁻¹)
2016	N1	8.38ab	8.82b	72.79a	4.57a	32.73b	49.87a	0.37a	2921.8ab	365.79a	3.02bc
	N2	10.13a	9.23ab	72.01ab	4.49a	34.91ab	42.48b	0.34ab	2976.7ab	359.36ab	3.04bc
	N3	11.23a	9.64a	71.39b	4.36a	36.68ab	38.66bc	0.34ab	3079.5a	301.73ab	3.42a
2017	N1	2.27d	8.38bc	72.13ab	3.87bc	27.43d	42.13b	0.36ab	1589.0d	154.32c	3.63a
	N2	3.79c	9.19ab	70.68bc	3.72bc	28.50cd	43.22b	0.35ab	2077.2c	155.03c	3.58a
	N3	4.37c	9.75a	69.87c	3.60c	30.42c	41.65b	0.31bc	2022.3c	137.17c	3.49a
2018	N1	7.35b	8.63b	73.01a	4.00b	37.65a	48.41a	0.34b	2738.7b	279.10ab	3.21b
	N2	8.69ab	9.05ab	72.38ab	3.90b	38.67a	44.15ab	0.33bc	2684.7b	273.39b	3.21b
	N3	9.76a	9.21ab	72.04ab	3.87b	38.26a	40.15bc	0.36ab	2774.6b	282.44ab	3.27ab
LSD _{0.05}		1.768	0.517	0.972	0.2131	2.197	5.075	0.028	229.2	78.66	0.2436

Values with the same letters within each column are not statistically different at p<0.05