

Table S1 Effect of organic fertilizer substitution on grain biomass, straw biomass and harvest indexes of wheat from 2017 to 2021. Values are means of triplicate samples and are not significantly different at $P < 0.05$ when followed by the same lowercase letters.

Treatments and cropping season	Grain biomass (Mg ha ⁻¹)	Straw biomass (Mg ha ⁻¹)	Harvest index
2017			
CK	3.8b	4.2a	0.47a
MF	6.9a	8.1a	0.46a
20%OF	6.8a	8.2a	0.45a
40%OF	6.7a	7.9a	0.46a
2018			
CK	3.3b	3.7b	0.47a
MF	7.0a	8.1a	0.46a
20%OF	6.8a	7.8a	0.47a
40%OF	6.8a	7.5a	0.48a
2019			
CK	2.2b	2.3b	0.45a
MF	5.3a	5.7a	0.45a
20%OF	5.4a	5.6a	0.45a
40%OF	5.5a	5.8a	0.44a
2020			
CK	2.2b	3.2b	0.41a
MF	5.9a	7.4a	0.44a
20%OF	5.4a	7.3a	0.43a
40%OF	5.6a	7.4a	0.43a
2021			
CK	2.4b	3.0b	0.44a
MF	6.7a	8.3a	0.45a
20%OF	6.7a	8.1a	0.45a
40%OF	6.7a	8.3a	0.45a

Table S2 Effect of organic fertilizer substitution on grain biomass, straw biomass and harvest indexes of maize from 2017 to 2020. Values are means of triplicate samples and are not significantly different at $P < 0.05$ when followed by the same lowercase letters.

Treatments and cropping season	Grain biomass (Mg ha ⁻¹)	Straw biomass (Mg ha ⁻¹)	Harvest index
2017			
CK	6.0b	5.4b	0.53a
MF	8.7a	7.8a	0.53a
20% OF	8.5a	7.7a	0.52a
40% OF	8.6a	7.8a	0.52a
2018			
CK	5.9b	5.6b	0.51a
MF	8.4a	8.2a	0.51a
20% OF	8.2a	8.0a	0.51a
40% OF	8.3a	7.9a	0.51a
2019			
CK	7.2b	6.9b	0.51a
MF	10.1a	9.4a	0.52a
20% OF	10.0a	9.2a	0.52a
40% OF	9.9a	9.3a	0.52a
2020			
CK	5.2b	5.0b	0.51a
MF	9.3a	8.8a	0.51a
20% OF	9.5a	9.1a	0.51a
40% OF	9.6a	9.2a	0.51a

Table S3 Effect of organic fertilizer substitution on N, P and K accumulation of wheat from 2017 to 2021. Values are means of triplicate samples and are not significantly different at $P < 0.05$ when followed by the same lowercase letters.

Treatments and cropping season	N accumulation (kg ha ⁻¹)		P accumulation (kg ha ⁻¹)		K accumulation (kg ha ⁻¹)	
	Grain	Straw	Grain	Straw	Grain	Straw
2017						
CK	71.7c	21.5b	13.0c	2.5b	14.7b	64.3b
MF	188.6a	67.0a	27.2a	4.5a	30.9a	190.4a
20%OF	168.1b	69.0a	24.9ab	4.0a	29.5a	172.7a
40%OF	164.1b	65.3a	21.9b	4.2a	29.2a	180.2a
2018						
CK	62.9b	18.9b	11.8c	2.9b	13.3b	64.0b
MF	195.7a	67.0a	29.3 a	4.5a	33.0a	205.9a
20%OF	170.3a	65.4a	26.1 ab	4.1a	30.7a	193.4a
40%OF	167.9a	62.4a	23.3 b	4.0ab	30.8a	191.5a
2019						
CK	42.4b	13.1b	9.1b	2.1b	8.7b	52.6b
MF	139.8a	51.9a	18.6a	4.6a	20.1a	195.4a
20%OF	141.0a	50.8a	17.9a	4.4a	19.9a	184.4a
40%OF	143.1a	57.0a	18.0a	4.8a	20.0a	202.1a
2020						
CK	44.6b	14.4b	8.3b	1.9b	7.8b	50.3b
MF	146.7a	59.2a	19.4a	4.7a	23.2a	167.0a
20%OF	132.9a	56.4a	18.4a	4.6a	21.2a	146.3a
40%OF	138.3a	56.5a	18.9a	4.2a	22.0a	152.1a
2021						
CK	47.3b	10.9b	8.1b	1.9b	7.2b	44.2b
MF	162.9a	58.9a	19.5a	4.7a	22.7a	169.8a
20%OF	160.2a	55.4a	20.1a	4.5a	22.4a	154.7a
40%OF	162.0a	55.5a	20.1a	4.6a	22.8a	161.6a

Table S4 Effect of organic fertilizer substitution on N, P and K accumulation of maize from 2017 to 2020. Values are means of triplicate samples and are not significantly different at $P < 0.05$ when followed by the same lowercase letters.

Treatments and cropping season	N accumulation (kg ha ⁻¹)		P accumulation (kg ha ⁻¹)		K accumulation (kg ha ⁻¹)	
	Grain	Straw	Grain	Straw	Grain	Straw
2017						
CK	85.0b	47.0b	32.0b	6.1b	35.8a	90.9b
MF	145.5a	77.3a	50.4a	10.2a	53.1a	144.0a
20%OF	146.4a	79.1a	49.0a	9.6a	52.5a	143.7a
40%OF	143.8a	80.5a	46.7a	10.2a	47.1a	147.1a
2018						
CK	88.6b	46.0b	33.3b	7.1b	37.3c	89.1b
MF	149.3a	76.6a	51.7a	10.1a	54.5a	142.8a
20%OF	149.8a	76.6a	50.2a	9.4a	53.7ab	139.4a
40%OF	147.1a	77.2a	47.8a	9.7a	48.2b	141.0a
2019						
CK	107.9b	49.1b	40.7b	5.1b	36.3b	95.7b
MF	179.0a	85.0a	61.8a	7.7a	52.2a	130.5a
20%OF	183.0a	83.5a	61.5a	7.1a	52.5a	129.9a
40%OF	174.9a	79.5a	56.5a	7.4a	46.0ab	123.2a
2020						
CK	79.1b	35.9b	30.6b	6.5b	31.7b	86.7b
MF	158.6a	78.3a	56.1a	11.9a	52.3a	159.1a
20%OF	152.9a	80.5a	53.5a	11.6a	54.9a	150.8a
40%OF	153.6a	82.6a	53.7a	11.4a	53.6a	143.3a

Figure captions

Fig. S1. Map of the study site.

Fig. S1

