

Table S1. ANOVA of grain yield and quality of 18 wheat varieties under nitrogen application.

Factor	Grain yield	Total protein	Albumin	Globulin	Prolamin	Glutelin
Cultivar(C)	89.62**	295.932**	67.498**	14.442**	42.787**	36.098**
NFA	26.45**	237.949**	1.726	0.373	6.706**	38.738**
C×NFA	6.22**	18.150**	10.656**	3.592**	3.933**	10.850**
Factor	Amylose	Amylopectin	Development Time	Stable Time	[Phytate]: [Fe]	[Phytate]: [Zn]
Cultivar(C)	7.390**	4.176**	69.565**	57.884**	69.565**	57.884**
NFA	63.343**	0.162	24.123**	3.860*	24.123**	3.860*
C×NFA	2.566**	3.366**	8.112**	5.257**	8.112**	5.257**

Note: The results in the table are F-values. * and **, significant at 0.05 and 0.01 probability level, respectively. NFA: foliage application of nitrogen. [Phytate]: [Fe] and [phytate]: [Zn] represent the molar ratios of the trace elements to phytic acid.

Table S2. Effects of NFA on Fe, Zn and Phytate content of 18 varieties

Cultivars	Fe					Zn					Phytate				
	CK	N1	N2	Mean	CV	CK	N1	N2	Mean	CV	CK	N1	N2	Mean	CV
LM18	41.36c	44.16b	46.41a	43.98cd	5.75	29.24c	32.51b	34.18a	31.98fg	7.85	6.4a	6.28a	6.29a	6.32cd	1.05
BN6	40.61c	43.61b	45.42a	43.21de	5.62	34.93a	34.95a	35.97a	35.28bc	1.68	6.73a	6.76a	6.02b	6.5cd	6.44
LH7	46.67c	51.76b	53.31a	50.58a	6.87	34.66c	40.9b	42.18a	39.25a	10.25	6.03a	6.29a	6.39a	6.24d	2.98
XN509	40.77c	50.96b	54.98a	48.9ab	14.98	32.16b	35.11a	35.27a	34.18cd	5.12	5.51a	5.72a	5.81a	5.68e	2.71
XN528	43.96b	46.2a	47.27a	45.81ab	3.69	32.25c	33.52a	32.77b	32.85ef	1.94	3.98a	3.97a	3.82a	3.92ij	2.28
JN223	44.57b	46.71a	47.65a	46.31ab	3.41	34.68c	40.76a	39.89b	38.44ab	8.55	4.51a	4.4a	4.04b	4.32gh	5.69

ZM836	36.85c	40.85b	43.34a	40.35e	8.12	32.51b	32.68b	35.64a	33.61de	5.23	4.05a	4.04a	4.15a	4.08hi	1.49
ZM1094	42.75b	46.38a	47.52a	45.55bc	5.47	33.12c	36.75b	37.88a	35.92ab	6.92	3.7a	3.76a	3.74a	3.73j	0.82
XM1	42.02b	45.5a	45.98a	44.5bc	4.86	31.33b	32.57a	31.82b	31.91fg	1.95	3.16a	3.14a	3.14a	3.15k	0.37
ND1108	40.61c	42.41b	44.52a	42.51de	4.60	36.25c	37.52a	36.77b	36.85ab	1.73	3.34a	3.35a	2.95b	3.21k	7.10
QF588	46.2c	48.22b	51.15a	48.52ab	5.13	36.68b	36.76b	37.89a	37.11abc	1.82	2.95a	2.91a	2.96a	2.94kl	0.90
WL123	40.61c	45.07b	46.68a	44.12cde	7.13	32.17c	34.8b	36.78a	34.58cd	6.68	2.66b	2.82ab	2.91a	2.8l	4.53
WL158	40.72b	42.99a	42.5a	42.07de	2.84	30.71a	31.69a	30.64a	31.01g	1.89	7.59a	7.42a	7.42a	7.48a	1.31
JM22	39.73c	42.4b	44.31a	42.15de	5.46	33.32a	33.37a	34.49a	33.73cd	1.96	7.23a	7ab	6.55b	6.93b	4.99
NF256	44.74c	48.88b	51.12a	48.25ab	6.71	30.46c	34.62b	36.99a	34.02cd	9.71	6.53a	6.84a	6.47a	6.61bc	3.00
XY22	42.49c	45.37b	46.19a	44.68bc	4.35	31.91c	36.29b	38.46a	35.55bcde	9.38	6.54a	6.73a	6.54a	6.6c	1.66
XY58-1	38.96b	40.96a	40.82a	40.25e	2.77	32.25c	34.05b	35.64a	33.98cd	4.99	4.89a	4.77a	4.77a	4.81f	1.44
WM58	42.57c	44.71b	45.91a	44.4bc	3.81	32.68b	32.76b	33.89a	33.11ef	2.04	4.99a	4.54b	4.35b	4.63fg	7.10
Mean	42.01c	45.39ab	46.94a	44.78	5.64	32.85b	35.08a	35.95a	34.63	4.98	5.04a	5.04a	4.90a	4.99	3.10

Note: N1 indicated that the concentration of nitrogen fertilizer applied at flowering stage was 1mmol L⁻¹; N2 indicates the concentration of nitrogen fertilizer applied at flowering stage 2mmol L⁻¹. NFA: foliage application of nitrogen.