## Alteration in yield and oil quality traits of winter rapeseed by lodging at different planting density and nitrogen rates

Shahbaz Khan<sup>1,a</sup>, Sumera Anwar<sup>1,a</sup>, Jie Kuai<sup>1</sup>, Ali Noman<sup>2</sup>, Muhammad Shahid<sup>1</sup>, Mairaj Din<sup>3</sup>, Ahmed Ali<sup>1</sup>, Guangsheng Zhou<sup>1,\*</sup>

Affiliation <sup>1</sup>College of Plant Science and Technology, Huazhong Agricultural University,

Wuhan, Hubei Province, P.R. China

<sup>2</sup>Government College University, Faisalabad, Pakistan

<sup>3</sup>College of Resources and Environment, Huazhong Agricultural University, Wuhan, Hubei

Province, P.R. China

<sup>a</sup>Equal contribution

\*Correspondence: zhougs@mail.hzau.edu.cn

## Table S1

Soil fertility in field experiments conducted in Wuhan, Hubei Province, China, during the growing seasons of 2014-2017.

Soil samples collected	Texture	рН	Organic matter (g kg <sup>-1</sup> )	Available N (mg kg <sup>-1</sup> )	Available P (mg kg <sup>-1</sup> )	Available K (mg kg <sup>-1</sup> )	Total N (%)	Total P (%)	Total K (%)
2014/15	silt clay loam	6.20	8.51	62.5	9.80	145	0.06	0.03	1.10
2015/16	silt clay loam	6.15	8.01	64.5	9.81	148	0.07	0.03	1.11
2016/17	silt clay loam	6.22	8.40	72.4	10.30	145	0.09	0.04	1.40



**Figure S1.** Monthly total rainfall and monthly temperature during the crop growing season in the experiment conducted during 2014-2017.



**Figure S2.** The induction of different artificial lodging angles during field trial of rapeseed at Huazhong Agricultural University, a) supported control, b) lodged plants