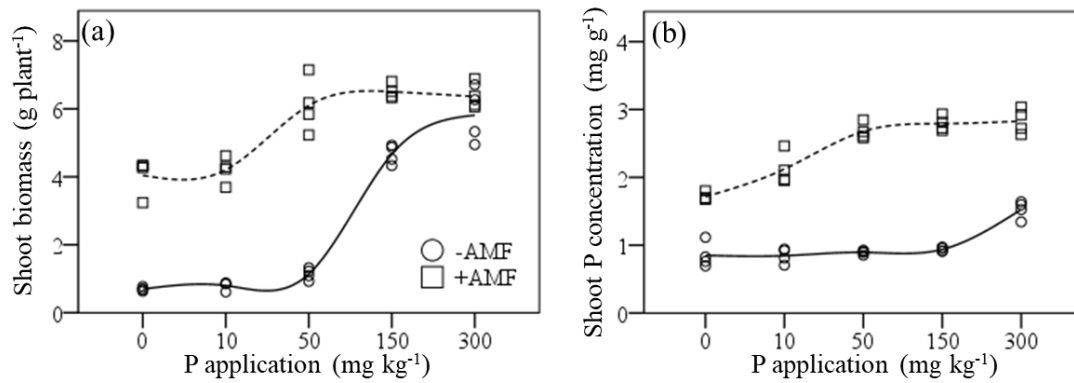
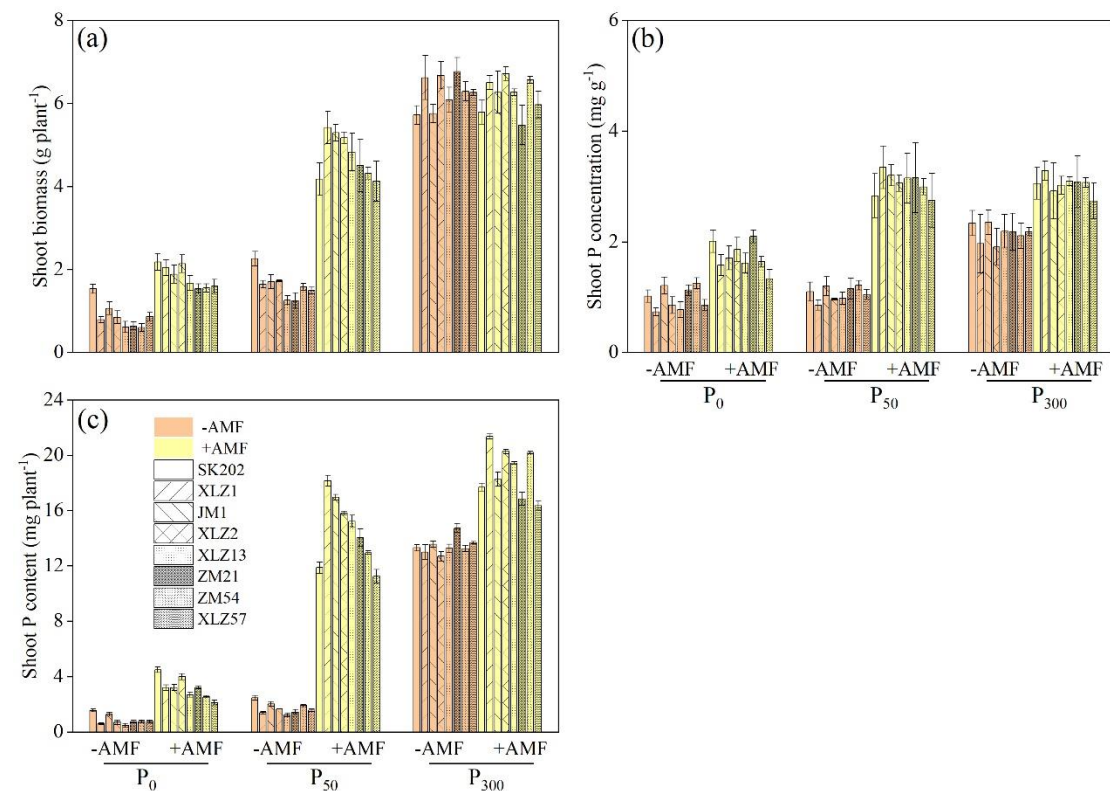


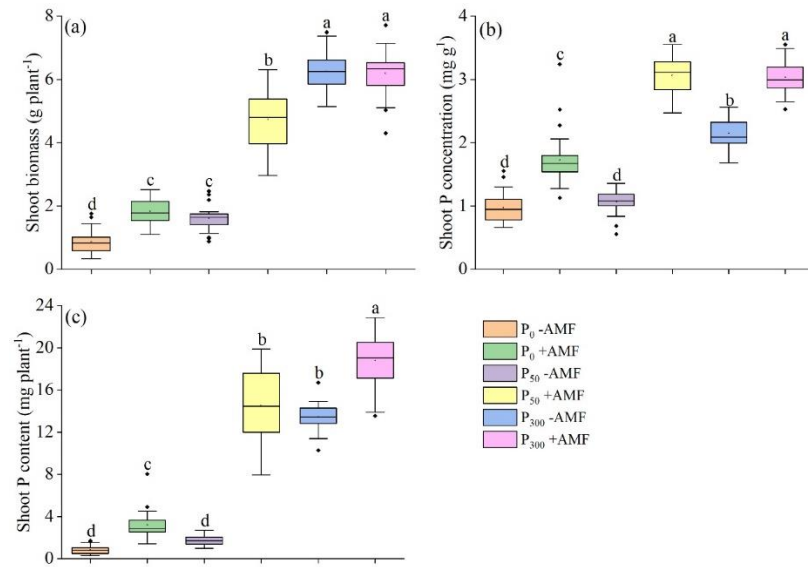
## Supporting materials



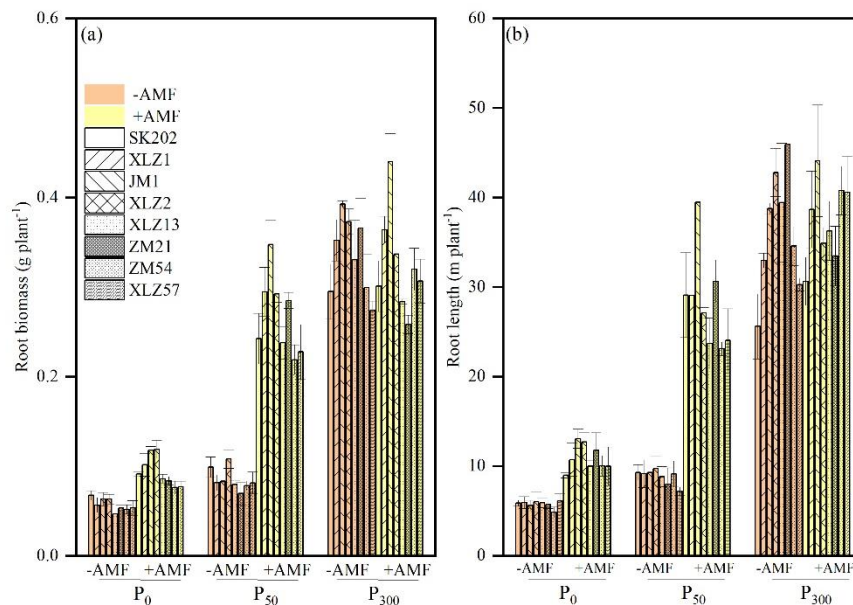
**Appendix A** Shoot biomass (a) and shoot P concentration (b) influenced by P application ( $P_0$ ,  $P_{10}$ ,  $P_{50}$ ,  $P_{150}$ ,  $P_{300}$ ) in the pre-experiment. Cotton variety used in this pre-experiment was Xinluzao13 (XLZ13). Circles and squares represent non-mycorrhizal and mycorrhizal treatments, respectively.



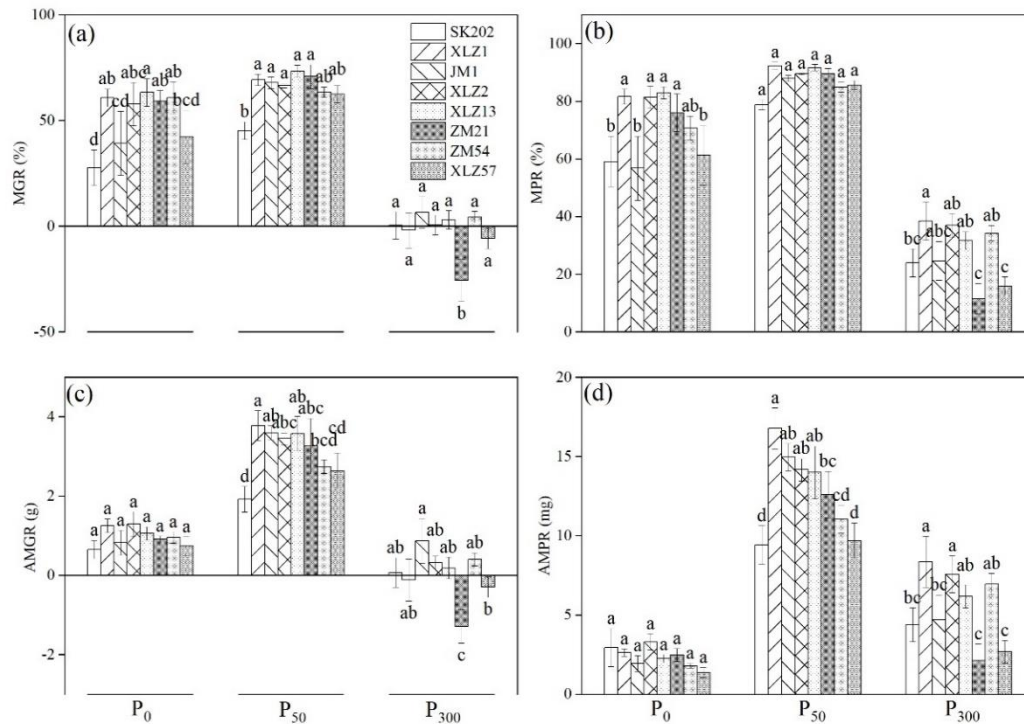
**Appendix B** Shoot biomass (a), shoot P concentration (b), and shoot P content (c) influenced by P application ( $P_0$ ,  $P_{50}$ ,  $P_{300}$ ), AMF (brown and green columns represent non-mycorrhizal and mycorrhizal treatments, respectively) and cotton varieties (SK202, XLZ1, JM1, XLZ2, XLZ13, ZM21, ZM54 and XLZ57).



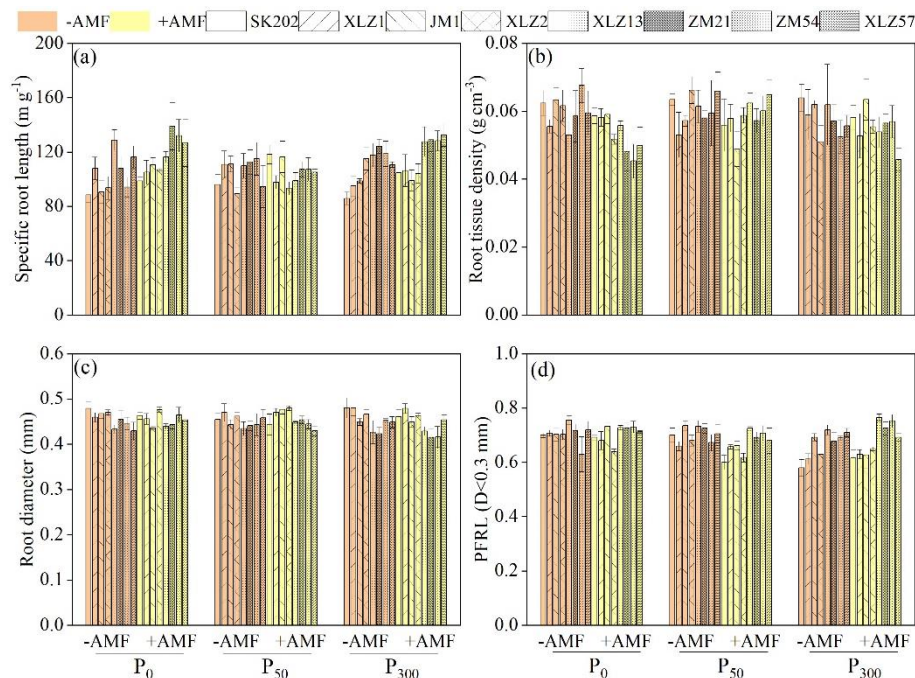
**Appendix C** Variation in shoot biomass (a), shoot P concentration (b) and shoot P content (c) with and without arbuscular mycorrhizal fungi (AMF) at three P levels (P<sub>0</sub>, P<sub>50</sub>, and P<sub>300</sub>). Bars topped by the same letter indicate the lack of significant differences at  $P < 0.05$  among six treatments.



**Appendix D** Root biomass (a) root length (b) influenced by P application (P<sub>0</sub>, P<sub>50</sub>, P<sub>300</sub>), AMF (brown and green columns represent non-mycorrhizal and mycorrhizal treatments, respectively) and cotton varieties (SK202, XLZ1, JM1, XLZ2, XLZ13, ZM21, ZM54 and XLZ57).

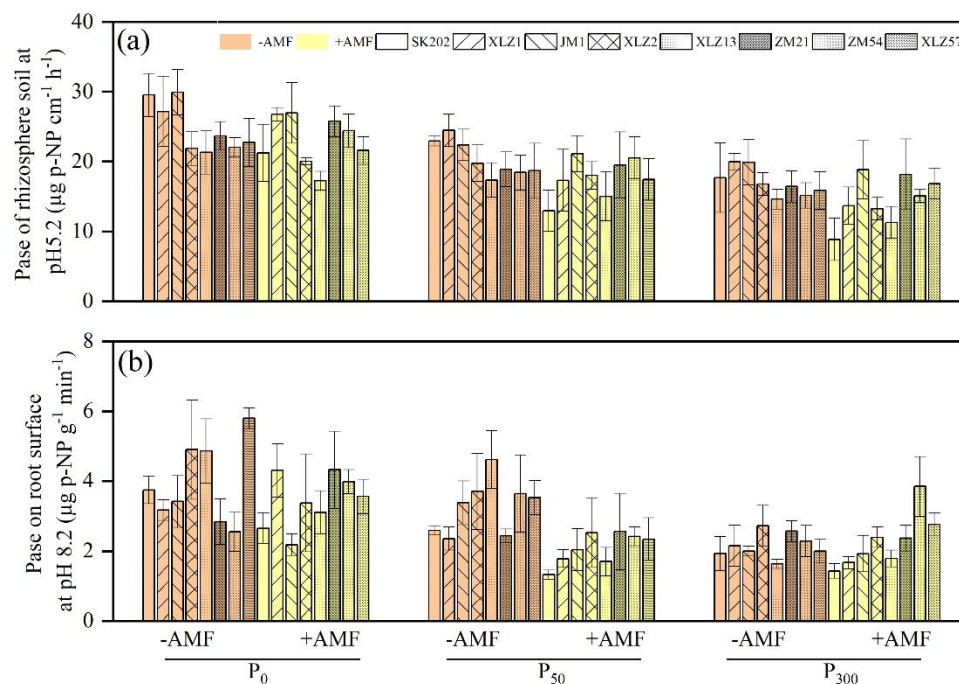


**Appendix E** Mycorrhiza-induced changes in relative (a, b) and absolute (c, d) shoot biomass (a, c) and shoot P content (b, d), for cotton varieties as a function of P application (P<sub>0</sub>, P<sub>50</sub>, P<sub>300</sub>). Lower-case letters indicate significant differences at  $P < 0.05$  among varieties at a given P level.

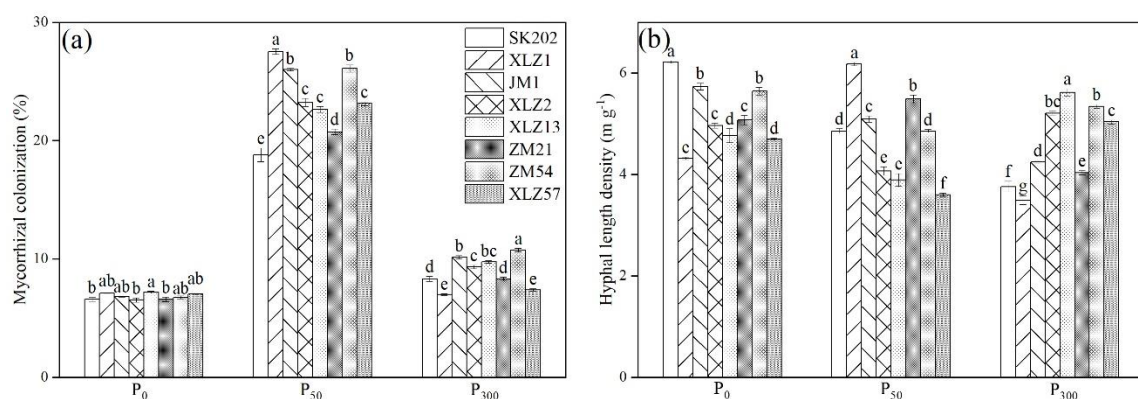


**Appendix F** Morphological traits (specific root length, a; root tissue density, b; root diameter, c; proportion of fine root length, PFRL, d) variation influenced by P application (P<sub>0</sub>, P<sub>50</sub>, P<sub>300</sub>), (brown and green columns represent non-mycorrhizal and mycorrhizal treatments, respectively) and cotton varieties (SK202, XLZ1, JM1, XLZ2,

XLZ13, ZM21, ZM54 and XLZ57).



**Appendix G** Physiological traits (phosphatase activity of rhizosphere soil, a; phosphatase activity on root surface, b), influenced by P application (P<sub>0</sub>, P<sub>50</sub>, P<sub>300</sub>), AMF (brown and green columns represent non-mycorrhizal and mycorrhizal treatments, respectively) and cotton varieties (SK202, XLZ1, JM1, XLZ2, XLZ13, ZM21, ZM54 and XLZ57).



**Appendix H** Mycorrhizal traits (mycorrhizal colonization, a; hyphal length density, b) as influenced by P application (P<sub>0</sub>, P<sub>50</sub>, P<sub>300</sub>) and cotton varieties (SK202, XLZ1, JM1, XLZ2, XLZ13, ZM21, ZM54 and XLZ57). Lower-case letters indicate significant differences at  $P < 0.05$  among varieties at a given P level.

**Appendix I** Correlation between relative mycorrhizal growth (P) responsiveness / absolute mycorrhizal growth (P) responsiveness and shoot biomass / shoot P content of non-mycorrhizal plants at three levels of P application (P<sub>0</sub>, P<sub>50</sub>, P<sub>300</sub>).

		MGR (%)	MPR (%)	AMGR (g)	AMPR (mg)
P <sub>0</sub>	non-mycorrhizal shoot biomass (g plant <sup>-1</sup> )	-0.92***	-0.67*	-0.54	0.31
	non-mycorrhizal shoot P content (mg plant <sup>-1</sup> )	-0.91***	-0.82**	-0.69*	0.13
P <sub>50</sub>	non-mycorrhizal shoot biomass (g plant <sup>-1</sup> )	-0.86**	-0.72*	-0.57	-0.28
	non-mycorrhizal shoot P content (mg plant <sup>-1</sup> )	-0.85**	-0.88**	-0.69*	-0.49
P <sub>300</sub>	non-mycorrhizal shoot biomass (g plant <sup>-1</sup> )	-0.60	0.08	-0.64*	0.17
	non-mycorrhizal shoot P content (mg plant <sup>-1</sup> )	-0.81**	-0.89**	-0.76*	-0.85**

Note: \* and \*\* refer to significant differences at  $P < 0.05$  and  $P < 0.01$ , respectively (Pearson correlation).