Table S1 Basic physicochemical properties of the experimental soil.

Year	Soil layer (cm)	Organic matter (g kg^{-1})	Alkali-hydrolyzable N (mg kg^{-1})	Available P (mg kg^{-1})	Available K (mg kg^{-1})	Bulk density (g cm^{-3})
2022	0~20	18.01	69.79	37.09	223.91	1.13
	20~40	15.26	50.31	27.14	203.06	1.27
	40~60	13.01	40.75	15.24	185.92	1.35
2023	0~20	18.32	68.64	40.12	214.67	1.13
	20~40	16.01	51.39	25.54	205.41	1.27
	40~60	13.11	41.58	16.97	181.72	1.38

Table S2 Primer sequences for PCR

Gene	Forward primer sequence (5′→3′)	Reverse primer sequence (5′→3′)
MdACTIN	TGGTGTCATGGTTGGTATGG	CCGTGCTCAATGGGATACTT
MdCHS	GGAGACAACTGGAGAAGGACTGGAA	CGACATTGATACTGGTGTCTTCA
MdCHI	GGGATAACCTCGCGGCCAAA	GCATCCATGCCGGAAGCTACAA
MdF3H	TGGAAGCTTGTGAGGACTGGGGT	CTCCTCCGATGGCAAATCAAAGA
MdDFR	GATAGGGTTTGAGTTCAAGTA	TCTCCTCAGCAGCCTCAGTTTTCT
MdUFGT	CCACCGCCCTTCCAAACACTCT	CACCCTTATGTTACGCGGCATGT
MdMYB1	TGCCTGGACTCGAGAGGAAGACA	CCTGTTTCCCAAAAGCCTGTGAA
MdbZIP44	AGCAGCACCTGGACGATCTGACG	GGTGAAGCATGTCGGCAGTGGCC
MdSUT1	GTGGTAATTTACCGGCATTTGTCG	AAGCTAGAGGCCGTAGGGCAAG
MdSUT4	TGATTTACCTCCAGTTGGCATTG	GCCAAGTCCCAAAGACTCAATTC
MdSOT1	GACAGAACCTCAGACTCCAAAG	TGACCAGAGACCTGAACGATA
MdSOT3	GCCGGTACTCTAAACATCTACTC	GAAGATGACTCCCGCAAGAA