

Supplementary data

Supplementary Table 1. *p*-values of effect sizes (g) plotted in Fig. 2

Trait	+SS1	+SS1.5	+CSS1	+CSS1.5
Infiltration rate	1.52×10^{-5}	0.006	7.40×10^{-11}	1.75×10^{-7}
Root length	5.59×10^{-7}	3.51×10^{-05}	5.54×10^{-12}	1.89×10^{-9}
Sympods	0.103	0.324	0.024	0.073
Boll number	0.004	0.019	3.97×10^{-4}	9.88×10^{-4}
Boll weight	0.024	0.021	2.00×10^{-4}	0.002
SCY	0.059	0.117	0.015	0.036

Supplementary Table 2. Structural equation modeling coefficients and their *p*-values for paths given in Fig. 3

From	To	β	<i>p</i>
Tillage intensity	Infiltration rate	0.71	0.0
Infiltration rate	Root length	0.42	0.002
Root length	Fruiting capacity	0.29	0.06
Infiltration rate	Fruiting capacity	0.21	0.08
Fruiting capacity	Seed cotton yield	0.55	0.0
Infiltration rate	Seed cotton yield	0.31	0.03
Tillage intensity	Seed cotton yield	0.18	0.1
Fruiting capacity	Sympods	0.71	0.0
Fruiting capacity	Boll number	0.88	0.0
Fruiting capacity	Boll weight	0.64	0.0

Supplementary Table 3. Regression estimates and their *p*-values for the quadratic response surface graph

Parameter	Coefficient	Standard error	<i>p</i> > t
Constant	-2118.1	5582.0	0.704
IR	-19.0	148.8	0.898
RL	67.3	93.2	0.470
IR ²	-12.2	4.1	0.003
RL ²	-1.72	0.51	0.001
IR x RL	8.58	2.67	0.001