

Table S1. Principal component statistics of the growth traits and wood properties in 19 *Catalpa bungei* clones.

Component	Standard deviation	Proportion of Variance /%	Cumulative Proportion /%
PC1	2.252	63.4	63.4
PC2	1.349	22.8	86.2
PC3	0.805	8.1	94.3
PC4	0.418	2.2	96.5
PC5	0.373	1.7	98.2
PC6	0.309	1.2	99.4
PC7	0.211	0.6	99.9
PC8	0.070	0.1	100.0

Table S2. Loading of principal component.

Traits	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8
Height	-0.116	0.682	0.227	0.246	-0.274	0.570	-0.084	0.056
DBH	-0.168	0.663	-0.034	-0.236	0.050	-0.686	0.031	0.023
HES	0.333	0.274	-0.610	0.267	0.574	0.162	0.053	-0.112
HTS	0.408	0.094	-0.284	-0.509	-0.461	0.164	0.480	-0.124
HRS	0.423	0.005	-0.258	0.077	-0.410	-0.170	-0.724	0.168
CSP	0.386	0.099	0.461	-0.552	0.447	0.187	-0.299	-0.020
BD	0.413	0.033	0.382	0.405	-0.105	-0.252	0.115	-0.656
ADD	0.428	0.016	0.263	0.281	0.042	-0.155	0.365	0.714

Table S3. Principal component scores of 19 clones.

Clone	Scores							
	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8
1-1	-0.065	1.158	-0.143	-0.249	-0.147	-0.656	0.349	-0.007
1-2	1.064	-0.896	0.906	-0.202	-0.517	0.311	0.174	-0.047
1-3	-2.930	-2.030	-0.224	-0.101	-0.036	-0.018	-0.098	0.092
1-4	-1.263	2.100	0.921	0.438	-0.662	0.004	-0.083	0.085
2-1	0.808	0.646	-0.750	0.156	-0.294	0.290	-0.108	-0.007
2-2	0.289	0.846	0.120	-0.872	0.234	0.500	0.193	-0.092
2-6	-1.262	-1.143	-1.248	0.287	-0.060	-0.112	-0.060	-0.067
2-8	-0.440	1.045	-0.320	0.122	-0.138	0.159	0.268	0.021
001-1	0.566	1.284	-0.511	-0.013	-0.500	0.196	-0.428	-0.079
002-1	-1.415	0.280	-0.689	-0.720	0.168	-0.072	0.154	0.069
008-1	-2.214	-1.005	0.177	0.339	0.161	0.448	0.100	-0.019
013-1	-0.232	-1.055	1.683	0.348	0.517	-0.149	-0.118	-0.118
015-1	-1.960	0.124	0.853	-0.114	0.262	-0.063	0.004	0.002
9-1	-3.723	0.145	-0.754	0.551	0.092	-0.357	0.095	-0.059
9-2	5.617	-0.697	-0.039	0.762	0.104	0.088	0.335	0.055
7080	0.053	-0.138	1.401	-0.292	-0.022	-0.187	-0.193	0.108
01	1.523	2.513	-0.499	0.158	0.965	0.114	-0.235	0.057
H3	4.024	-0.400	-0.148	-0.374	-0.149	-0.595	-0.176	-0.068
DY	1.560	-2.775	-0.737	-0.226	0.023	0.100	-0.174	0.076

Table S4. Genetic gain for different scenario.

Clone	Height (m)	DBH (cm)	HES (N)	HTS (N)	HRS (N)	CSP (Mpa)	BD (g·cm ⁻³)	ADD (g·cm ⁻³)
Scenario A								
General mean	8.00	10.00	3348.47	2840.66	2365.46	40.74	0.397	0.477
1-1	8.24	11.33	3407.13	2991.43	2331.35	40.31	0.400	0.480
1-4	9.46	11.47	3070.44	2622.69	2214.44	39.54	0.400	0.470
008-1	8.90	11.39	4200.94	2989.05	2587.08	44.11	0.410	0.500
9-1	8.68	10.62	3584.20	3068.26	2699.06	40.93	0.400	0.470
Selected mean	8.82	11.20	3565.68	2917.86	2457.98	41.22	0.403	0.480
Genetic gain /%	7.75	9.06	5.08	2.08	2.49	1.01	1.19	0.62
Scenario B								
002-1	7.34	8.34	4158.87	3625.41	3214.43	46.00	0.480	0.590
008-1	8.90	11.39	4200.94	2989.05	2587.08	44.11	0.410	0.500
7080	7.20	9.54	3770.25	3530.58	3150.36	45.69	0.450	0.540
DY	6.45	7.86	3413.84	3084.87	2733.25	41.36	0.400	0.490
Selected mean	7.47	9.28	3885.98	3307.48	2921.28	44.29	0.435	0.530
Genetic gain /%	-5.03	-5.45	12.58	12.57	14.94	7.43	8.48	10.02
Scenario C								
2-1	8.33	10.07	3681.39	3102.43	2641.26	40.41	0.400	0.480
2-2	8.39	10.40	3453.06	3113.52	2243.71	43.57	0.390	0.470
008-1	8.90	11.39	4200.94	2989.05	2587.08	44.11	0.410	0.500
9-1	8.68	10.62	3584.20	3068.26	2699.06	40.93	0.400	0.470
Selected mean	8.58	10.62	3729.90	3068.32	2542.78	42.26	0.400	0.480
Genetic gain /%	5.43	4.66	8.93	6.13	4.76	3.18	0.63	0.69