

Supplementary Data

Combining ability analysis and evaluation of heterosis in *Jatropha curcas* L. F₁-Hybrids

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Table S1. Means of plant height, collar diameter and number of leaves of parents and their hybrids in *Jatropha curcas*

Genotypes	Plant height				Collar diameter				No. of leaves			
	15 DAP	30 DAP	60 DAP	90 DAP	15 DAP	30 DAP	60 DAP	90 DAP	15 DAP	30 DAP	60 DAP	90 DAP
My2.1 (1)	17.0	20.7	43.3	60.3	6.1	9.0	13.8	19.4	3.7	5.3	9.3	15.3
In2.1 (2)	15.0	20.7	49.7	80.7	4.9	7.8	16.9	23.6	4.0	6.3	13.3	20.3
Ph1.2(3)	17.3	19.7	30.3	45.3	6.4	9.6	13.6	18.7	4.0	6.0	11.7	8.3
Id1.1 (4)	14.3	19.3	39.3	40.7	6.7	9.5	15.7	18.7	4.0	6.0	9.0	7.7
Id1.2(5)	18.7	18.3	27.3	50.0	6.4	9.7	12.8	23.6	4.0	5.7	8.0	11.3
My1.1 (6)	17.3	19.3	35.0	51.0	7.2	9.7	15.2	24.1	4.0	6.0	9.0	11.7
In1.1 (7)	10.7	14.0	27.3	55.0	3.9	6.8	10.6	18.4	2.7	5.0	7.0	12.0
In1.2 (8)	13.0	16.0	34.7	57.0	5.9	8.1	14.6	20.0	3.0	5.0	10.0	14.0
Ph1.1 (9)	15.3	16.7	42.7	57.0	6.1	8.7	15.9	23.1	4.0	6.0	9.7	15.3
My2.2(10)	16.7	19.0	34.0	57.0	6.3	9.6	16.1	24.0	4.0	7.0	11.7	13.7
1×2	15.7	19.7	39.7	56.3	6.5	9.2	13.2	20.5	4.0	5.7	8.7	14.7
1×3	17.3	20.7	36.7	50.3	6.8	9.5	14.3	20.5	3.7	6.0	8.7	15.3
1×4	14.7	17.3	27.7	45.0	6.9	9.1	12.7	18.9	4.0	5.0	7.0	11.7
1×5	9.7	14.3	37.0	55.3	4.5	7.1	14.9	23.2	2.7	4.7	11.0	13.7
1×6	15.0	16.3	35.7	59.0	7.6	9.6	13.8	20.5	4.0	5.7	11.0	18.7
1×7	12.7	15.3	25.0	36.7	5.0	7.7	11.9	14.8	4.0	4.3	8.7	10.3
1×8	14.0	16.7	38.3	55.0	5.5	8.2	29.2	15.8	4.0	4.0	8.0	10.7
1×9	13.7	18.0	30.7	38.0	5.7	8.5	14.4	14.6	4.0	4.7	9.0	9.0
1×10	19.0	20.7	39.7	69.3	6.5	9.8	15.8	22.1	4.0	5.7	10.7	20.3
2×3	16.4	17.2	29.4	43.7	6.4	9.8	14.4	17.3	4.0	6.0	7.6	10.0
2×4	16.1	18.5	32.2	44.6	7.0	10.7	14.6	16.5	3.9	6.0	7.9	9.9
2×5	10.7	13.3	29.3	46.7	4.8	9.0	12.9	19.5	3.7	4.0	8.7	9.7

DAP: Days after planting

Table S1. (Continued)

Genotypes	Plant height				Collar diameter				No. of leaves			
	15 DAP	30 DAP	60 DAP	90 DAP	15 DAP	30 DAP	60 DAP	90 DAP	15 DAP	30 DAP	60 DAP	90 DAP
2×6	12.7	15.7	35.3	61.7	6.3	9.1	15.5	23.9	4.0	6.0	11.0	16.7
2×7	14.3	16.3	42.0	73.0	6.4	8.8	13.6	22.4	3.7	5.3	10.3	17.3
2×8	14.3	15.7	42.3	71.7	5.5	8.2	13.1	20.1	3.0	5.7	9.3	16.7
2×9	16.0	19.0	44.7	50.0	6.1	9.5	14.9	16.4	4.0	6.0	11.7	10.7
2×10	18.0	19.7	29.7	38.0	6.5	9.5	14.3	15.8	4.0	5.3	6.3	8.0
3×4	15.3	18.7	42.3	50.7	5.9	9.3	18.6	25.3	4.0	6.0	11.7	11.0
3×5	14.7	18.7	33.0	41.7	5.7	9.0	13.2	17.2	4.0	6.0	7.3	7.7
3×6	16.0	20.0	29.0	30.0	6.6	10.1	14.1	17.0	4.0	5.3	6.0	5.7
3×7	15.7	18.7	40.0	61.3	6.4	9.8	14.2	21.0	3.3	5.3	8.3	14.0
3×8	13.3	17.0	43.0	76.7	4.6	7.9	16.2	25.0	4.0	5.7	11.0	16.0
3×9	14.0	19.0	31.7	57.7	5.3	8.9	14.6	23.9	3.7	6.0	10.3	12.7
3×10	15.3	18.0	30.3	51.7	6.2	9.8	13.4	21.2	4.0	6.0	7.7	12.3
4×5	16.0	19.0	30.0	31.0	6.3	9.1	13.5	15.8	4.0	6.0	6.0	6.7
4×6	13.7	17.7	37.0	49.0	5.2	8.4	15.6	21.8	4.0	6.0	9.3	10.7
4×7	15.3	17.0	37.3	54.0	6.0	8.1	15.2	22.2	3.3	5.7	10.0	13.7
4×8	16.0	17.0	32.0	42.7	6.2	8.6	13.4	18.6	4.0	5.0	7.3	9.3
4×9	16.7	19.3	39.3	55.0	6.9	9.4	15.5	22.5	4.0	6.0	8.7	12.0
4×10	15.0	17.0	26.3	38.3	5.9	9.0	13.4	20.9	4.0	4.7	7.3	10.7
5×6	12.0	14.3	30.0	53.7	5.1	7.4	14.7	23.7	4.0	5.0	7.7	12.0
5×7	15.0	17.7	25.7	36.7	6.0	8.7	12.4	17.7	4.0	5.0	6.3	8.7
5×8	15.3	17.7	28.3	36.7	6.5	9.7	14.1	17.4	4.0	6.0	6.7	8.7
5×9	15.7	16.3	39.0	43.7	5.6	7.9	15.1	20.9	3.7	5.7	9.7	11.0

DAP: Days after planting

Table S1. (Continued)

Genotypes	Plant height				Collar diameter				No. of leaves			
	15 DAP	30 DAP	60 DAP	90 DAP	15 DAP	30 DAP	60 DAP	90 DAP	15 DAP	30 DAP	60 DAP	90 DAP
5×9	15.7	16.3	39.0	43.7	5.6	7.9	15.1	20.9	3.7	5.7	9.7	11.0
5×10	11.7	16.0	28.7	36.7	4.6	8.2	14.8	22.8	3.3	5.7	8.0	8.7
6×7	14.7	15.7	30.0	35.7	5.6	8.3	13.3	19.5	3.3	5.0	7.0	8.3
6×8	16.3	19.0	27.7	47.3	5.8	9.8	13.9	18.6	4.0	6.0	6.7	9.3
6×9	13.3	18.7	23.3	36.7	6.0	9.3	13.6	20.6	4.0	6.0	8.0	6.7
6×10	14.0	16.3	26.3	47.7	5.7	8.7	14.9	23.5	3.7	5.0	8.0	10.0
7×8	10.0	11.7	21.7	35.0	4.0	6.2	11.1	17.6	3.0	4.3	6.3	7.7
7×9	13.7	15.0	24.0	29.7	5.4	7.7	10.7	16.7	3.3	5.0	5.7	7.0
7×10	16.7	20.0	29.3	42.7	6.1	9.2	13.1	17.6	4.0	6.0	6.3	14.0
8×9	14.7	16.3	32.7	44.0	5.4	8.4	14.1	21.3	4.0	5.0	9.0	11.3
8×10	14.3	16.3	28.0	38.3	6.0	8.7	11.1	18.8	4.0	5.3	6.3	11.0
9×10	17.3	20.0	35.3	63.3	6.7	10.6	17.9	27.7	3.7	6.7	12.3	16.0
Max	19.0	20.7	49.7	80.7	7.6	10.7	29.2	25.3	4.0	7.0	13.3	20.3
Min	9.7	13.3	25.0	30.0	3.9	6.8	10.6	14.6	2.7	4.0	6.0	5.7
Mean	15.0	17.8	34.8	51.5	6.0	9.0	14.7	20.2	3.8	5.5	9.0	12.2
C.V.	12.7	9.7	10.3	9.8	14.1	10.1	8.5	9.3	13.2	11.6	15.2	21.5
LSD 5%	1.4	1.3	2.7	4.3	0.7	0.7	8.2	1.5	0.6	0.7	1.1	2.3
LSD 1%	1.9	1.8	3.6	5.7	1.0	1.0	10.8	2.0	0.8	1.0	1.5	3.0

LSD: Least Significant Difference; DAP: day after planting

Table S2. Estimate of specific combining ability effects (SCA) of 45 *Jatropha* hybrids for measured traits in nursery stage

Hybrids	Plant height				Collar diameter				No. of leaves			
	15DAP	30DAP	60DAP	90DAP	15DAP	30DAP	60DAP	90DAP	15DAP	30DAP	60DAP	90DAP
1×2	0.55 ^{ns}	1.27**	-0.8 ^{ns}	-5.22**	0.44*	0.24 ^{ns}	-2.13 ^{ns}	1.55**	0.88 ^{ns}	0.35 ^{ns}	-1.52**	-1.33*
1×3	1.49**	1.35**	0.17 ^{ns}	-3.47**	0.56**	0.25 ^{ns}	-0.20 ^{ns}	1.03*	-1.68**	0.55**	1.99**	2.06**
1×4	0.70 ^{ns}	-1.40**	-9.44**	-3.66**	0.46*	0.07 ^{ns}	-2.91 ^{ns}	0.65 ^{ns}	0.90 ^{ns}	-0.29 ^{ns}	-1.96**	-0.69 ^{ns}
1×5	-4.92**	-3.06**	3.81**	7.50**	-1.32**	-1.53**	0.39 ^{ns}	3.85**	0.77 ^{ns}	-0.37 ^{ns}	2.54**	1.42*
1×6	0.55 ^{ns}	-1.76**	1.76*	7.78**	1.22**	0.58**	-1.43 ^{ns}	1.62**	-1.38*	0.41*	2.09**	5.42**
1×7	-1.20**	-1.34**	-7.69**	-13.89**	-0.56**	-0.32 ^{ns}	-1.42 ^{ns}	-2.96**	0.90 ^{ns}	-0.43*	1.56**	-2.22**
1×8	0.48 ^{ns}	0.34 ^{ns}	2.84**	0.56 ^{ns}	-0.27 ^{ns}	-0.13 ^{ns}	13.45**	-2.57**	0.68 ^{ns}	-0.84**	-0.74*	-3.19**
1×9	-1.56**	0.31 ^{ns}	-6.71**	-14.00**	0.32 ^{ns}	-0.40 ^{ns}	-1.10 ^{ns}	-5.29**	0.98 ^{ns}	-0.68**	-0.83*	-4.72**
1×10	3.02**	1.77**	5.98**	16.67**	0.23 ^{ns}	0.59**	0.42 ^{ns}	1.62**	0.96 ^{ns}	0.21 ^{ns}	1.45**	5.67**
2×3	0.94*	-1.95**	-9.99**	-15.89**	0.22 ^{ns}	0.16 ^{ns}	-0.16 ^{ns}	2.61**	-1.40*	0.02 ^{ns}	-2.88**	-2.88**
2×4	0.74 ^{ns}	-0.04 ^{ns}	-7.27**	-8.75**	0.65**	1.35**	-0.50 ^{ns}	-3.42**	0.85 ^{ns}	0.18 ^{ns}	-1.52**	-2.63**
2×5	-3.81**	-3.70**	-6.02**	-6.25**	-0.86**	0.14 ^{ns}	-1.03 ^{ns}	-0.69 ^{ns}	0.98 ^{ns}	-1.57**	-0.35 ^{ns}	-2.52**
2×6	-2.17**	-2.06**	-0.74 ^{ns}	5.36**	0.15 ^{ns}	-0.11 ^{ns}	0.89 ^{ns}	2.69**	1.30 ^{ns}	0.21 ^{ns}	1.54**	3.48**
2×7	0.58 ^{ns}	0.52 ^{ns}	7.15**	17.36**	1.04**	0.62**	0.86 ^{ns}	3.77**	0.91 ^{ns}	0.05 ^{ns}	1.67**	3.84**
2×8	0.16 ^{ns}	-0.98**	4.67**	12.14**	-0.08 ^{ns}	-0.29 ^{ns}	-2.00 ^{ns}	0.89*	0.98 ^{ns}	0.30 ^{ns}	0.94*	2.87**
2×9	0.88*	1.05**	5.12**	-7.08**	0.16 ^{ns}	0.49*	-0.02 ^{ns}	-4.32**	0.93 ^{ns}	0.13 ^{ns}	1.29**	2.99**
2×10	2.13**	1.13**	-6.19**	-19.75**	0.42*	0.03 ^{ns}	-0.43 ^{ns}	-5.48**	0.90 ^{ns}	-0.65**	-3.44**	-6.61**

DAP: days after planting

Table S2. (Continued)

Hybrids	Plant height				Collar diameter				No. of leaves			
	15DAP	30DAP	60DAP	90DAP	15DAP	30DAP	60DAP	90DAP	15DAP	30DAP	60DAP	90DAP
3×4	0.64 ^{ns}	-0.62 ^{ns}	7.04**	4.67**	-0.53**	-0.31 ^{ns}	3.65 ^{ns}	4.99**	-1.49*	0.05 ^{ns}	2.67**	1.42*
3×5	0.53 ^{ns}	0.71*	1.62*	-3.50**	-0.04 ^{ns}	-0.15 ^{ns}	-0.74 ^{ns}	-3.58**	-1.32*	0.30 ^{ns}	-1.16**	-1.80**
3×6	0.44 ^{ns}	1.35**	-3.10**	-18.55**	0.30 ^{ns}	0.53**	-0.56 ^{ns}	-4.74**	-1.65**	-0.59**	-2.94**	-4.80**
3×7	1.19**	1.44**	9.12**	13.45**	0.92**	1.23**	1.48 ^{ns}	1.85**	-1.65**	-0.09 ^{ns}	2.20**	3.23**
3×8	-1.56**	-0.56 ^{ns}	9.31**	24.89**	-1.12**	-0.98**	1.05 ^{ns}	5.24**	-1.21*	0.16 ^{ns}	2.23**	4.92**
3×9	-1.84**	0.13 ^{ns}	3.91**	9.34**	-0.71**	-0.40*	-0.26 ^{ns}	2.69**	-1.74**	-0.01 ^{ns}	2.48**	2.73**
3×10	-1.26**	-1.45**	-1.55*	2.67 ^{ns}	-0.02 ^{ns}	0.07 ^{ns}	-1.34 ^{ns}	0.61 ^{ns}	-1.43*	-0.12 ^{ns}	-1.58**	0.45 ^{ns}
4×5	1.27**	1.63**	-1.99*	-9.03**	0.29 ^{ns}	0.18 ^{ns}	-0.75 ^{ns}	-4.45**	0.93 ^{ns}	0.46*	-1.80**	-1.88**
4×6	-1.42**	-0.40 ^{ns}	4.29**	5.59**	-1.37**	-0.94**	0.64 ^{ns}	0.62 ^{ns}	-1.52**	0.24 ^{ns}	1.09**	3.12**
4×7	1.33**	0.35 ^{ns}	5.84**	11.25**	0.19 ^{ns}	-0.24 ^{ns}	2.24 ^{ns}	3.54**	0.90 ^{ns}	0.41*	2.56**	3.81**
4×8	1.58**	0.02 ^{ns}	-2.30**	-3.97**	0.21 ^{ns}	-0.02 ^{ns}	-1.95 ^{ns}	0.61 ^{ns}	0.94 ^{ns}	-0.34 ^{ns}	-0.74*	-0.83 ^{ns}
4×9	1.30**	1.05**	3.15**	11.81**	0.55**	0.23 ^{ns}	0.30 ^{ns}	1.84**	0.95 ^{ns}	0.16 ^{ns}	-0.49 ^{ns}	2.98**
4×10	-1.12**	-1.87**	-6.16**	-6.53**	-0.52**	-0.53**	-1.61 ^{ns}	-0.42 ^{ns}	0.82 ^{ns}	-1.29**	-1.21**	-0.30 ^{ns}
5×6	-2.31**	-2.40**	1.2 ^{ns}	11.09**	-0.84**	-1.51**	0.77 ^{ns}	1.99**	1.35*	-0.51**	1.08**	2.56**
5×7	1.77**	2.35**	-1.91*	-5.25**	0.88**	0.82**	0.41 ^{ns}	-1.43**	0.93 ^{ns}	-0.01 ^{ns}	-0.60 ^{ns}	-0.08 ^{ns}
5×8	1.69**	2.02**	-2.05**	-9.14**	1.17**	1.44**	-0.21 ^{ns}	-2.27**	0.91 ^{ns}	0.91**	-0.91**	-1.38*
5×9	1.08*	-0.62 ^{ns}	6.73**	0.31 ^{ns}	-0.09 ^{ns}	-0.81**	0.97 ^{ns}	-0.26 ^{ns}	0.98 ^{ns}	0.07 ^{ns}	2.01**	1.09 ^{ns}

DAP: days after planting

Table S2. (Continued)

Hybrids	Plant height				Collar diameter				No. of leaves			
	15DAP	30DAP	60DAP	90DAP	15DAP	30DAP	60DAP	90DAP	15DAP	30DAP	60DAP	90DAP
5×10	-3.67**	-1.54**	0.09 ^{ns}	-7.36**	-1.16**	-0.97**	0.86 ^{ns}	1.02*	-0.18 ^{ns}	-0.04 ^{ns}	-0.05 ^{ns}	-2.19**
6×7	1.08*	-0.34 ^{ns}	1.70*	-9.64**	-0.05 ^{ns}	0.03 ^{ns}	0.66 ^{ns}	0.59 ^{ns}	-1.68**	-0.23 ^{ns}	-0.38 ^{ns}	-2.01**
6×8	2.33**	2.66**	-3.44**	-1.86 ^{ns}	-0.09 ^{ns}	1.15**	-1.20 ^{ns}	-2.10**	-1.24*	0.68**	-1.35**	-1.72**
6×9	-1.62**	1.02**	-9.66**	-10.08**	-0.22 ^{ns}	0.24 ^{ns}	-1.22 ^{ns}	-1.52**	-1.43*	0.18 ^{ns}	-1.10**	-4.24**
6×10	-1.70**	-1.90**	-2.96**	0.25 ^{ns}	-0.63**	-0.79**	0.21 ^{ns}	0.69 ^{ns}	-1.79**	-0.93**	-0.49 ^{ns}	-1.86**
7×8	-2.92**	-3.26**	-8.21**	-13.53**	-1.11**	-1.45**	-2.03 ^{ns}	-0.52 ^{ns}	0.84 ^{ns}	-0.48*	-0.88*	-3.69**
7×9	0.20 ^{ns}	1.23**	7.77**	16.41**	0.00 ^{ns}	-0.40*	-2.18 ^{ns}	-2.83**	0.98 ^{ns}	-0.32 ^{ns}	-2.63**	-4.22**
7×10	2.05**	3.19**	1.26 ^{ns}	-4.08**	0.60**	0.71**	0.31 ^{ns}	-2.60**	0.82 ^{ns}	0.57**	-1.35**	1.84**
8×9	0.38 ^{ns}	-0.23 ^{ns}	-1.91*	-5.97**	-0.21 ^{ns}	0.02 ^{ns}	-1.17 ^{ns}	1.19**	0.62 ^{ns}	-0.40*	1.06**	-0.19 ^{ns}
8×10	0.70 ^{ns}	1.81*	2.88**	12.30**	0.22 ^{ns}	-0.14 ^{ns}	-4.01 ^{ns}	-2.00**	0.60 ^{ns}	-0.18 ^{ns}	-1.99**	-1.47*
9×10	1.36**	1.55**	2.56**	15.14**	0.62**	1.28**	3.00 ^{ns}	5.48**	0.87 ^{ns}	0.66**	2.92**	3.67**
SE (sij)	1.00	0.82	3.39	6.60	0.20	0.23	0.42	1.01	0.07	0.11	0.49	1.80
SE (sij-sik)	2.16	1.77	7.32	14.25	0.43	0.50	0.92	2.19	0.15	0.25	1.06	3.88
SE (sij-skl)	1.97	1.61	6.65	12.96	0.39	0.45	0.83	1.99	0.14	0.23	0.96	3.53

DAP: days after planting; ^{ns}, * and ** non-significant, significant at the 0.05 level and Significant at the 0.01 level respectively

Table S3. Heterosis (MP) and heterobeltiosis (BP) for plant height in hybrids of *Jatropha* in nursery stage

Hybrids	Plant height							
	15 DAP		30 DAP		60 DAP		90 DAP	
	%MP	%BP	%MP	%BP	%MP	%BP	%MP	%BP
1×2	-2.1	-7.8	-4.8	-4.8	-14.7	-20.1	-20.1	-30.2
1×3	1.0	0.0	2.5	0.0	-0.5	-15.4	-4.7	-16.6
1×4	-6.4	-13.7	-13.3	-16.1	-33.1	-36.2	-10.9	-25.4
1×5	-45.8	-48.2	-26.5	-30.7	4.7	-14.6	0.3	-8.3
1×6	-12.6	-13.5	-18.3	-21.0	-8.9	-17.7	6.0	-2.2
1×7	-8.4	-25.5	-11.5	-25.8	-29.3	-42.3	-36.4	-39.2
1×8	-6.7	-17.7	-9.1	-19.4	-1.7	-11.5	-6.3	-8.8
1×9	-15.5	-19.6	-3.6	-12.9	-28.7	-29.2	-35.2	-37.0
1×10	12.9	11.8	4.2	0.0	2.6	-8.5	18.2	14.9
2×3	1.7	-5.2	-14.5	-16.6	-26.5	-40.8	-30.6	-45.8
2×4	10.0	7.5	-7.5	-10.4	-27.6	-35.1	-26.5	-44.7
2×5	-36.6	-42.9	-31.6	-35.5	-23.8	-40.9	-28.6	-42.2
2×6	-21.7	-26.9	-21.7	-24.2	-16.5	-28.9	-6.3	-23.6
2×7	11.7	-4.4	-5.8	-21.0	9.1	-15.4	7.6	-9.5
2×8	2.4	-4.4	-14.6	-24.2	0.4	-14.8	4.1	-11.2
2×9	5.5	4.4	1.8	-8.1	-3.3	-10.1	-27.4	-38.0
2×10	13.7	8.0	-0.8	-4.8	-29.1	-40.3	-44.8	-52.9
3×4	-3.2	-11.5	-4.3	-5.1	21.5	7.6	17.8	11.8
3×5	-18.5	-21.4	-1.8	-5.1	14.5	8.8	-12.6	-16.7
3×6	-7.7	-7.7	2.6	1.7	-11.2	-17.1	-37.7	-41.2
3×7	11.9	-9.6	10.9	-5.1	38.7	31.9	22.3	11.5
3×8	-12.1	-23.1	-4.7	-13.6	32.3	24.0	49.8	34.5
3×9	-14.3	-19.2	4.6	-3.4	-13.2	-25.8	12.7	1.2
3×10	-9.8	-11.5	-6.9	-8.5	-5.7	-10.8	1.0	-9.4
4×5	-3.0	-14.3	0.9	-1.7	-10.0	-23.7	-31.6	-38.0
4×6	-13.7	-21.2	-8.6	-8.6	-0.5	-5.9	6.9	-3.9
4×7	22.7	7.0	2.0	-12.1	12.0	-5.1	12.9	-1.8
4×8	17.1	11.6	-3.8	-12.1	-13.5	-18.6	-12.6	-25.2
4×9	12.4	8.7	7.4	0.0	-4.1	-7.8	12.6	-3.5
4×10	-3.2	-10.0	-11.3	-12.1	-28.2	-33.1	-21.5	-32.8

DAP: days after planting

Table S3. Continued

Hybrids	Plant height							
	15 DAP		30 DAP		60 DAP		90 DAP	
	%MP	%BP	%MP	%BP	%MP	%BP	%MP	%BP
5×6	-33.3	-35.7	-23.9	-25.9	-3.7	-14.3	6.3	5.2
5×7	2.3	-19.6	9.3	-3.6	-6.1	-6.1	-30.2	-33.3
5×8	-3.2	-17.9	2.9	-3.6	-8.6	-18.3	-31.5	-35.7
5×9	-7.8	-16.1	-6.7	-10.9	11.4	-8.6	-18.4	-23.4
5×10	-34.0	-37.5	-14.3	-15.8	-6.5	-15.7	-31.5	-35.7
6×7	4.8	-15.4	-6.0	-19.0	-3.7	-14.3	-32.7	-35.2
6×8	7.7	-5.8	7.6	-1.7	-20.6	-21.0	-12.4	-17.0
6×9	-18.4	-23.1	3.7	-3.5	-39.9	-45.3	-32.1	-35.7
6×10	-17.7	-19.2	-14.8	-15.5	-23.7	-24.8	-11.7	-16.4
7×8	-15.5	-23.1	-22.2	-27.1	-30.1	-37.5	-37.5	-38.6
7×9	5.1	-10.9	-2.2	-10.0	-31.4	-43.8	-47.0	-48.0
7×10	22.0	0.0	21.2	5.3	-4.4	-13.7	-23.8	-25.2
8×9	3.5	-4.4	0.0	-2.0	-15.5	-23.4	-22.8	-22.8
8×10	-3.4	-14.0	-6.7	-14.0	-18.5	-19.2	-32.8	-32.8
9×10	8.3	4.0	12.2	5.3	-7.8	-17.2	11.1	11.1
Min	-45.8	-48.2	-31.6	-35.5	-39.9	-45.3	-47.0	-52.9
Max	22.7	11.8	21.2	5.3	38.7	31.9	49.8	34.5

DAP: days after planting

Table S4. Heterosis (MP) and heterobeltiosis (BP) for collar diameter in hybrids of *Jatropha* in nursery stage

Hybrids	Collar diameter							
	15 DAP		30 DAP		60 DAP		90 DAP	
	%MP	%BP	%MP	%BP	%MP	%BP	%MP	%BP
1×2	19.5	7.7	8.9	1.5	-14.2	-22.2	-4.8	-13.2
1×3	8.9	6.3	2.2	-0.7	4.6	4.1	7.4	5.3
1×4	8.3	3.0	-1.4	-3.9	-14.0	-19.3	-1.1	-2.9
1×5	-27.6	-29.3	-24.3	-27.1	12.3	8.5	8.0	-1.6
1×6	14.1	5.1	2.5	-1.0	-4.6	-9.2	-5.8	-14.9
1×7	0.3	-17.6	-2.7	-14.8	-2.2	-13.6	-21.6	-23.7
1×8	-8.3	-9.3	-4.5	-9.2	-17.2	-19.5	-19.9	-21.1
1×9	-5.5	-5.5	-4.3	-5.9	-3.0	-9.6	-31.6	-37.0
1×10	4.3	2.1	5.4	2.1	5.7	-1.9	1.7	-8.0
2×3	14.1	0.7	12.8	2.4	-5.5	-14.7	-18.2	-26.7
2×4	21.3	4.5	23.8	12.7	-10.5	-13.7	-22.2	-30.2
2×5	-14.5	-24.6	2.3	-7.9	-13.3	-23.8	-17.2	-17.2
2×6	5.0	-12.0	4.0	-6.2	-3.4	-8.3	0.3	-0.8
2×7	46.8	32.2	21.0	13.3	-1.3	-19.9	6.8	-5.0
2×8	2.5	-6.7	3.4	1.2	-16.8	-22.6	-7.8	-14.7
2×9	11.6	0.6	14.9	8.8	-9.5	-12.2	-29.9	-30.6
2×10	16.1	2.6	8.6	-1.7	-13.3	-15.6	-33.5	-34.1
3×4	-9.9	-12.4	-2.8	-3.1	27.1	18.7	35.1	34.9
3×5	-10.0	-10.0	-6.7	-7.5	-0.3	-3.2	-18.8	-27.3
3×6	-2.7	-8.3	4.5	3.8	-2.3	-7.4	-20.5	-29.5
3×7	25.3	1.1	19.4	2.1	17.4	4.2	13.3	12.5
3×8	-25.2	-27.8	-11.1	-17.8	14.7	11.0	29.0	24.6
3×9	-14.2	-16.2	-2.4	-6.6	-1.0	-8.2	14.4	3.3
3×10	-2.9	-3.1	2.4	2.1	-9.8	-16.6	-0.6	-11.7
4×5	-3.3	-5.9	-5.0	-6.2	-5.6	-14.2	-25.5	-33.2
4×6	-25.4	-27.8	-12.5	-13.4	0.7	-0.9	2.0	-9.4
4×7	12.2	-11.4	-0.6	-14.7	16.0	-3.0	19.4	18.3
4×8	-2.1	-7.9	-2.1	-9.1	-11.2	-14.4	-4.0	-7.2
4×9	7.3	2.0	2.7	-1.4	-2.2	-2.9	7.6	-2.6
4×10	-9.2	-11.9	-5.6	-6.2	-15.6	-16.6	-2.3	-13.0

DAP: days after planting

Table S4. (Continued)

Hybrids	Collar diameter									
	15 DAP		30 DAP		60 DAP		90 DAP			
	%MP	%BP	%MP	%BP	%MP	%BP	%MP	%BP		
5×6	-25.3	-29.6	-23.8	-24.0	4.5	-3.7	-0.8	-1.8		
5×7	16.9	-5.8	5.7	-10.3	5.7	-3.6	-15.9	-25.1		
5×8	5.7	2.1	8.2	-0.7	3.2	-3.0	-20.2	-26.3		
5×9	-10.5	-12.6	-14.4	-18.8	5.0	-5.2	-10.6	-11.4		
5×10	-27.0	-27.2	-15.7	-16.1	2.7	-7.7	-4.3	-5.1		
6×7	0.9	-22.2	1.0	-14.1	3.4	-12.5	-8.2	-19.1		
6×8	-12.2	-19.9	9.5	0.7	-6.9	-9.0	-15.9	-23.0		
6×9	-10.1	-17.1	1.3	-3.8	-12.5	-14.4	-12.6	-14.4		
6×10	-15.8	-20.8	-9.7	-10.0	-4.8	-7.3	-2.5	-2.6		
7×8	-19.3	-33.2	-17.4	-24.2	-11.7	-23.8	-8.6	-12.3		
7×9	8.4	-11.0	-0.9	-11.8	-19.0	-32.6	-19.4	-27.7		
7×10	19.9	-3.2	12.4	-4.2	-1.9	-18.7	-17.1	-26.8		
8×9	-10.0	-11.0	0.0	-3.4	-7.3	-11.3	-1.2	-7.8		
8×10	-2.7	-5.8	-2.1	-9.7	-27.3	-30.7	-14.8	-21.9		
9×10	8.1	5.8	15.4	10.0	12.1	11.6	17.6	15.4		
Min	-27.6	-33.2	-24.3	-27.1	-27.3	-32.6	-33.5	-37.0		
Max	46.8	32.2	23.8	13.3	27.1	18.7	35.1	34.9		

DAP: days after planting

Table S5. Heterosis (MP) and heterobeltiosis (BP) for number of leaves in hybrids of *Jatropha* in nursery stage

Hybrids	Number of leaves							
	15 DAP		30 DAP		60 DAP		90 DAP	
	%MP	%BP	%MP	%BP	%MP	%BP	%MP	%BP
1×2	4.4	0.0	-2.9	-10.5	-23.5	-35.0	-17.8	-27.9
1×3	-4.4	-8.3	5.9	0.0	-17.5	-25.7	29.6	0.0
1×4	4.4	0.0	-11.8	-16.7	-23.6	-25.0	1.5	-23.9
1×5	-30.4	-33.3	-15.2	-17.7	26.9	17.9	2.5	-10.9
1×6	4.4	0.0	0.0	-5.6	20.0	17.9	38.3	21.7
1×7	26.3	9.1	-16.1	-18.8	6.1	-7.1	-24.4	-32.6
1×8	20.0	9.1	-22.6	-25.0	-17.2	-20.0	-27.3	-30.4
1×9	4.4	0.0	-17.7	-22.2	-5.3	-6.9	-41.3	-41.3
1×10	4.4	0.0	-8.1	-19.1	1.6	-8.6	40.2	32.6
2×3	0.7	0.7	-2.4	-4.9	-39.4	-43.2	-30.0	-50.7
2×4	-1.4	-1.4	-3.4	-5.9	-29.7	-41.1	-29.1	-51.2
2×5	-8.3	-8.3	-33.3	-36.8	-18.8	-35.0	-39.0	-52.5
2×6	0.0	0.0	-2.7	-5.3	-1.5	-17.5	4.2	-18.0
2×7	10.0	-8.3	-5.9	-15.8	1.6	-22.5	7.2	-14.8
2×8	-14.3	-25.0	0.0	-10.5	-20.0	-30.0	-2.9	-18.0
2×9	0.0	0.0	-2.7	-5.3	1.5	-12.5	-40.2	-47.5
2×10	0.0	0.0	-20.0	-23.8	-49.3	-52.5	-52.9	-60.7
3×4	0.0	0.0	0.0	0.0	12.9	0.0	37.5	32.0
3×5	0.0	0.0	2.9	0.0	-25.4	-37.1	-22.0	-32.4
3×6	0.0	0.0	-11.1	-11.1	-41.9	-48.6	-43.3	-51.4
3×7	0.0	-16.7	-3.0	-11.1	-10.7	-28.6	37.7	16.7
3×8	14.3	0.0	3.0	-5.6	1.5	-5.7	43.3	14.3
3×9	-8.3	-8.3	0.0	0.0	-3.1	-11.4	7.0	-17.4
3×10	0.0	0.0	-7.7	-14.3	-34.3	-34.3	12.1	-9.8
4×5	0.0	0.0	2.9	0.0	-29.4	-33.3	-29.8	-41.2
4×6	0.0	0.0	0.0	0.0	3.7	3.7	10.3	-8.6
4×7	0.0	-16.7	3.0	-5.6	25.0	11.1	39.0	13.9
4×8	14.3	0.0	-9.1	-16.7	-22.8	-26.7	-13.9	-33.3
4×9	0.0	0.0	0.0	0.0	-7.1	-10.3	4.4	-21.7
4×10	0.0	0.0	-28.2	-33.3	-29.0	-37.1	0.0	-22.0

DAP: days after planting

Table S5. (Continued)

Hybrids	Number of leaves							
	15 DAP		30 DAP		60 DAP		90 DAP	
	%MP	%BP	%MP	%BP	%MP	%BP	%MP	%BP
5×6	0.0	0.0	-14.3	-16.7	-9.8	-14.8	4.4	2.9
5×7	20.0	0.0	-6.3	-11.8	-15.6	-20.8	-25.7	-27.8
5×8	14.3	0.0	12.5	5.9	-25.9	-33.3	-31.6	-38.1
5×9	-8.3	-8.3	-2.9	-5.6	9.4	0.0	-17.5	-28.3
5×10	-16.7	-16.7	-10.5	-19.1	-18.6	-31.4	-30.7	-36.6
6×7	0.0	-16.7	-9.1	-16.7	-12.5	-22.2	-29.6	-30.6
6×8	14.3	0.0	9.1	0.0	-29.8	-33.3	-27.3	-33.3
6×9	0.0	0.0	0.0	0.0	-14.3	-17.2	-50.6	-56.5
6×10	-8.3	-8.3	-23.1	-28.6	-22.6	-31.4	-21.1	-26.8
7×8	5.9	0.0	-13.3	-13.3	-25.5	-36.7	-41.0	-45.2
7×9	0.0	-16.7	-9.1	-16.7	-32.0	-41.4	-48.8	-54.4
7×10	20.0	0.0	0.0	-14.3	-32.1	-45.7	9.1	2.4
8×9	14.3	0.0	-9.1	-16.7	-8.5	-10.0	-22.7	-26.1
8×10	14.3	0.0	-11.1	-23.8	-41.5	-45.7	-20.5	-21.4
9×10	-8.3	-8.3	2.6	-4.8	15.6	5.7	10.3	4.4
Min	-30.4	-33.3	-33.3	-36.8	-49.3	-52.5	-52.9	-60.7
Max	26.3	9.1	12.5	5.9	26.9	17.9	43.3	32.6

DAP: days after planting