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Supplementary Table 1. Components of genetic variance for mean percent disease index (PDI) estimates at 30, 60 and 100 days after sowing (DAS) in response to chilli leaf curl virus disease (ChiLCVD)

DAS	GCA variance (σ^2_{GCA})	SCA variance (σ^2_{SCA})	Predictability ratio	Additive variance	Dominance variance	Degree of dominance
30	7.70	184.44	0.07	15.40	184.44	3.46
60	8.13	24.10	0.40	16.26	24.10	1.22
100	8.57	22.46	0.43	17.13	22.46	1.15

DAS: days after sowing; GCA: general combining ability; SCA: specific combining ability.

Supplementary Table 2. Estimates of percent disease index (PDI) at 30, 60 and 100 days after sowing (DAS) for responses to chilli leaf curl virus disease (ChiLCVD) in parental lines and testers in chilli

Parent	PDI		
	30 DAS	60 DAS	100 DAS
Lines			
CMS6A	33.83	94.19	95.69
CMS7A	47.06	58.79	60.29
CMS8A	46.22	100.00	100.00
CMS9A	34.83	94.44	95.44
CMS10A	46.83	100.00	100.00
CMSUAA	36.94	100.00	100.00
Testers			
AV2	46.98	49.24	50.24
AV16	83.67	90.42	90.92
AV31	38.67	91.67	92.67
AV43	42.56	95.83	94.61
AV44	35.94	100.00	100.00
AV46	43.22	100.00	97.78
AV47	58.83	100.00	100.00
AV48	54.06	100.00	99.50
AV49	46.83	100.00	100.00

AV53	93.83	96.06	97.06
AV59	92.75	95.49	96.49
AV99	43.67	51.39	52.39
AV100	97.66	74.24	100.00
PDL1	24.11	31.25	31.75
S343	62.44	30.02	29.77

DAS: days after sowing; PDI: percent disease index.

Supplementary Table 3. Estimates of percent disease index (PDI) at 30, 60 and 100 days after sowing (DAS) for responses to chilli leaf curl virus disease (ChiLCVD) in chilli hybrids and checks

Hybrid/Check	PDI		
	30 DAS	60 DAS	100 DAS
CMS6A×AV2	27.78	84.38	83.38
CMS6A×AV16	65.06	78.27	75.27
CMS6A×AV31	57.22	83.23	85.23
CMS6A×AV43	60.42	96.76	98.26
CMS6A×AV44	53.82	98.61	99.11
CMS6A×AV46	45.72	97.22	97.72
CMS6A×AV47	66.67	97.22	97.72
CMS6A×AV48	61.36	97.22	98.22
CMS6A×AV49	37.50	100.00	100.00
CMS6A×AV53	100.00	96.88	97.88
CMS6A×AV59	91.67	98.33	98.83
CMS6A×AV99	33.33	70.00	70.50
CMS6A×AV100	59.26	100.00	100.00
CMS6A×PDL1	41.67	75.00	74.50
CMS6A×S343	90.74	21.67	20.17
CMS7A×AV2	16.67	70.00	70.50
CMS7A×AV16	29.17	70.96	70.46
CMS7A×AV31	85.71	95.83	96.33
CMS7A×AV43	90.46	85.86	86.86
CMS7A×AV44	76.49	73.96	74.96
CMS7A×AV46	79.17	94.05	94.05
CMS7A×AV47	83.33	96.30	97.80
CMS7A×AV48	77.78	82.96	84.46
CMS7A×AV49	39.12	92.71	92.21
CMS7A×AV53	59.97	95.24	95.74

CMS7A×AV59	41.67	77.38	78.38
CMS7A×AV99	16.67	85.83	87.33
CMS7A×AV100	58.33	79.86	79.36
CMS7A×PDL1	16.67	72.22	72.72
CMS7A×S343	91.67	32.52	32.52
CMS8A×AV2	57.50	91.22	91.72
CMS8A×AV16	43.75	97.22	97.72
CMS8A×AV31	55.21	97.50	98.00
CMS8A×AV43	71.19	86.11	86.11
CMS8A×AV44	73.15	100.00	100.00
CMS8A×AV46	85.20	98.81	97.81
CMS8A×AV47	100.00	100.00	100.00
CMS8A×AV48	83.33	94.79	95.29
CMS8A×AV49	73.33	97.88	97.88
CMS8A×AV53	84.52	94.17	95.67
CMS8A×AV59	61.57	96.43	96.93
CMS8A×AV99	36.11	91.39	92.39
CMS8A×AV100	58.33	98.81	98.31
CMS8A×PDL1	57.64	80.00	82.00
CMS8A×S343	79.86	35.42	31.79
CMS9A×AV2	38.89	79.17	82.17
CMS9A×AV16	41.67	98.33	98.83
CMS9A×AV31	83.33	89.38	91.38
CMS9A×AV43	96.53	78.96	81.46
CMS9A×AV44	82.29	80.56	82.56
CMS9A×AV46	45.64	92.86	93.36
CMS9A×AV47	87.50	97.92	99.42
CMS9A×AV48	73.81	100.00	100.00
CMS9A×AV49	86.67	93.75	94.25
CMS9A×AV53	81.67	93.96	94.96
CMS9A×AV59	90.00	87.10	88.10
CMS9A×AV99	33.33	83.33	86.83
CMS9A×AV100	53.33	100.00	100.00
CMS9A×PDL1	61.11	100.00	100.00
CMS9A×S343	74.72	27.78	27.78
CMS10A×AV2	31.94	92.38	93.38
CMS10A×AV16	38.89	95.48	96.98
CMS10A×AV31	36.67	100.00	100.00
CMS10A×AV43	33.33	97.29	98.29
CMS10A×AV44	42.86	96.03	97.03
CMS10A×AV46	79.17	98.61	99.11

CMS10A×AV47	43.89	100.00	100.00
CMS10A×AV48	50.00	100.00	100.00
CMS10A×AV49	41.67	100.00	100.00
CMS10A×AV53	50.00	100.00	100.00
CMS10A×AV59	33.33	95.83	97.33
CMS10A×AV99	16.67	95.00	96.50
CMS10A×AV100	66.67	98.61	99.11
CMS10A×PDL1	16.67	97.92	98.42
CMS10A×S343	33.75	23.61	22.61
CMSUAA×AV2	30.00	55.89	57.89
CMSUAA×AV16	36.11	92.17	93.17
CMSUAA×AV31	63.89	88.43	89.93
CMSUAA×AV43	39.58	92.56	93.56
CMSUAA×AV44	54.17	61.94	63.94
CMSUAA×AV46	44.44	91.27	92.27
CMSUAA×AV47	34.38	90.63	91.63
CMSUAA×AV48	34.03	97.92	98.42
CMSUAA×AV49	35.71	93.06	93.56
CMSUAA×AV53	60.36	88.54	90.54
CMSUAA×AV59	44.76	76.39	78.89
CMSUAA×AV99	26.50	88.33	85.83
CMSUAA×AV100	70.83	93.52	94.02
CMSUAA×PDL1	29.61	64.83	61.54
CMSUAA×S343	70.28	32.64	30.64
Arka Haritha	34.83	100.00	100.00
Arka Khyathi	16.67	96.53	97.53
Arka Meghana	27.83	99.07	99.47
Arka Swetha	34.55	100.00	100.00
KBCH 1	36.67	100.00	100.00

DAS: days after sowing; PDI: percent disease index.

Supplementary Table 4. Estimates of specific combining ability (SCA) effects for mean PDI estimates at 30, 60 and 100 days after sowing (DAS) in response to chilli leaf curl virus disease (ChiLCVD) among chilli hybrids

Hybrid	PDI		
	30 DAS	60 DAS	100 DAS
CMS6A×AV2	-8.87	5.46	3.84
CMS6A×AV16	19.77*	-10.54	-13.16*

CMS6A×AV31	-9.30	-9.24	-7.95
CMS6A×AV43	-7.69	7.10	7.80
CMS6A×AV44	-12.83	13.35*	13.15*
CMS6A×AV46	-20.36*	1.68	2.30
CMS6A×AV47	-5.48	0.13	0.26
CMS6A×AV48	-4.88	1.66	2.46
CMS6A×AV49	-17.69*	3.69	3.98
CMS6A×AV53	24.39**	2.01	2.37
CMS6A×AV59	28.31***	9.68	9.38
CMS6A×AV99	3.38	-15.72**	-15.76*
CMS6A×AV100	-4.72	4.79	5.17
CMS6A×PDL1	1.58	-6.73	-6.72
CMS6A×S343	14.38	-7.34	-7.11
CMS7A×AV2	-18.03*	-2.97	-3.50
CMS7A×AV16	-14.17	-11.91*	-12.44*
CMS7A×AV31	21.14**	9.31	8.69
CMS7A×AV43	24.31**	2.13	1.94
CMS7A×AV44	11.79	-5.35	-5.46
CMS7A×AV46	15.04	4.44	4.16
CMS7A×AV47	13.14	5.15	5.87
CMS7A×AV48	13.49	-6.65	-5.76
CMS7A×AV49	-14.11	2.34	1.73
CMS7A×AV53	-13.68	6.31	5.78
CMS7A×AV59	-19.73*	-5.33	-5.52
CMS7A×AV99	-11.33	6.05	6.61
CMS7A×AV100	-3.69	-9.40	-9.93
CMS7A×PDL1	-21.46**	-3.57	-2.96
CMS7A×S343	17.27*	9.45	10.77
CMS8A×AV2	12.28	7.97	7.85
CMS8A×AV16	-10.11	4.08	4.96
CMS8A×AV31	-19.88*	0.70	0.50
CMS8A×AV43	-5.48	-7.88	-8.66
CMS8A×AV44	-2.06	10.41	9.71
CMS8A×AV46	10.55	-1.06	-1.93
CMS8A×AV47	19.29*	-1.41	-1.78
CMS8A×AV48	8.52	-5.09	-4.79
CMS8A×AV49	9.58	-2.75	-2.45
CMS8A×AV53	0.35	-5.03	-4.15
CMS8A×AV59	-10.34	3.44	3.16

CMS8A×AV99	-2.41	1.33	1.80
CMS8A×AV100	-14.21	-0.72	-0.84
CMS8A×PDL1	8.99	-6.06	-3.55
CMS8A×S343	-5.06	2.07	0.18
CMS9A×AV2	-6.97	-0.29	1.00
CMS9A×AV16	-12.84	8.97	8.77
CMS9A×AV31	7.58	-3.64	-3.42
CMS9A×AV43	19.20*	-11.25	-10.61
CMS9A×AV44	6.42	-5.25	-5.03
CMS9A×AV46	-29.66***	-3.23	-3.68
CMS9A×AV47	6.13	0.28	0.33
CMS9A×AV48	-1.64	3.89	2.61
CMS9A×AV49	22.26**	-3.10	-3.38
CMS9A×AV53	-3.15	-1.46	-2.15
CMS9A×AV59	17.43*	-2.10	-2.96
CMS9A×AV99	-5.84	-2.94	-1.05
CMS9A×AV100	-19.87*	4.24	3.54
CMS9A×PDL1	11.81	17.71**	17.15**
CMS9A×S343	-10.85	-1.78	-1.12
CMS10A×AV2	13.74	7.07	7.04
CMS10A×AV16	12.04	0.26	1.73
CMS10A×AV31	-11.41	1.13	0.02
CMS10A×AV43	-16.33*	1.23	1.03
CMS10A×AV44	-5.34	4.37	4.26
CMS10A×AV46	31.54***	-3.33	-3.10
CMS10A×AV47	-9.81	-3.48	-4.25
CMS10A×AV48	2.20	-1.95	-2.56
CMS10A×AV49	4.92	-2.70	-2.81
CMS10A×AV53	-7.15	-1.26	-2.29
CMS10A×AV59	-11.57	0.78	1.09
CMS10A×AV99	5.15	2.88	3.43
CMS10A×AV100	21.14**	-2.99	-2.52
CMS10A×PDL1	-4.96	9.78	10.38
CMS10A×S343	-24.16**	-11.80*	-11.47
CMSUAA×AV2	7.85	-17.24**	-16.25**
CMSUAA×AV16	5.32	9.13	10.12
CMSUAA×AV31	11.86	1.73	2.14
CMSUAA×AV43	-14.02	8.67	8.50
CMSUAA×AV44	2.02	-17.53**	-16.62**

CMSUAA×AV46	-7.12	1.50	2.24
CMSUAA×AV47	-23.27**	-0.67	-0.43
CMSUAA×AV48	-17.71*	8.14	8.05
CMSUAA×AV49	-4.97	2.52	2.93
CMSUAA×AV53	-0.74	-0.54	0.44
CMSUAA×AV59	-4.08	-6.48	-5.15
CMSUAA×AV99	11.04	8.39	4.96
CMSUAA×AV100	21.36**	4.09	4.58
CMSUAA×PDL1	4.03	-11.12	-14.29*
CMSUAA×S343	8.42	9.41	8.75

*Significance at $p = 0.05$; **Significance at $p = 0.01$; ***Significance at $p = 0.001$

DAS: days after sowing; PDI: percent disease index.

Supplementary Table 5. Estimates of percentage better parent heterosis and percentage standard heterosis for percent disease index (PDI) estimates at 30, 60 and 100 days after sowing (DAS) among chilli hybrids

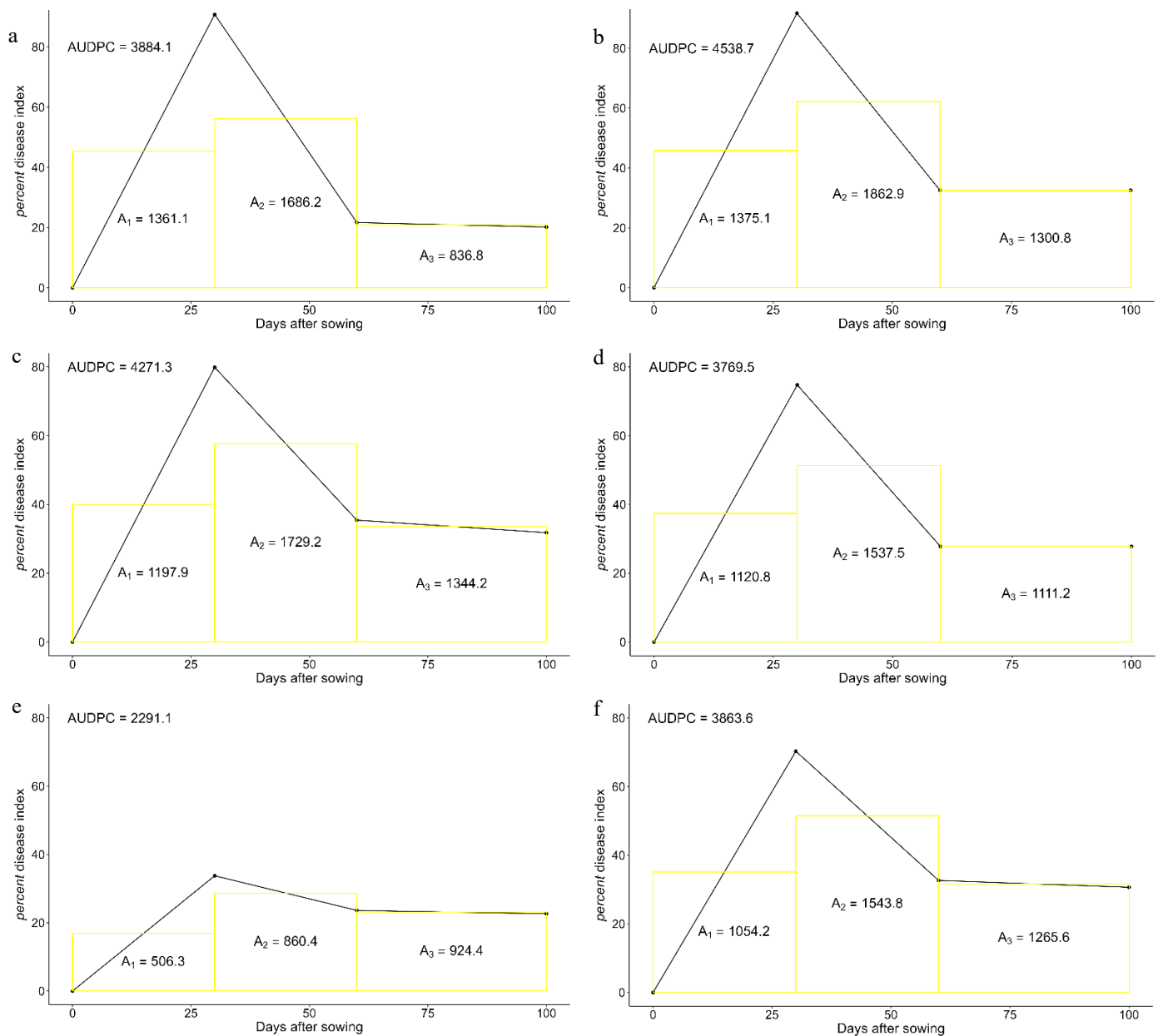
Hybrid	Better parent heterosis			Standard heterosis		
	30 DAS	60 DAS	100 DAS	30 DAS	60 DAS	100 DAS
CMS6A×AV2	-17.90	71.35**	65.95**	66.66	-12.59	-14.51
CMS6A×AV16	92.31**	-13.43	-17.21	290.38**	-18.91*	-22.82*
CMS6A×AV31	69.13*	-9.21	-8.03	243.33**	-13.78	-12.61
CMS6A×AV43	78.57*	2.73	3.86	262.49**	0.24	0.75
CMS6A×AV44	59.07	4.69	3.57	222.91**	2.16	1.62
CMS6A×AV46	35.13	3.22	2.12	174.30*	0.72	0.20
CMS6A×AV47	97.05**	3.22	2.12	299.99**	0.72	0.20
CMS6A×AV48	81.37*	3.22	2.64	268.17**	0.72	0.71
CMS6A×AV49	10.84	6.17	4.50	125.00	3.60	2.54
CMS6A×AV53	195.57**	2.85	2.28	499.99**	0.36	0.36
CMS6A×AV59	170.94**	4.40	3.28	449.99**	1.87	1.34
CMS6A×AV99	-1.48	36.22*	34.57*	99.99	-27.48**	-27.71**
CMS6A×AV100	75.15*	34.69**	4.50	255.55**	3.60	2.54
CMS6A×PDL1	72.81	140.00**	134.65**	150.00*	-22.30*	-23.61**
CMS6A×S343	168.20**	-27.83	-32.26	444.44**	-77.55**	-79.32**
CMS7A×AV2	-64.53**	42.15*	40.32*	0.00	-27.48**	-27.71**
CMS7A×AV16	-38.02	20.69	16.86	75.00	-26.49**	-27.75**

CMS7A×AV31	121.67**	63.00**	59.77**	414.27**	-0.72	-1.22
CMS7A×AV43	112.57**	46.03**	44.06**	442.77**	-11.05	-10.94
CMS7A×AV44	112.80**	25.79	24.32	358.92**	-23.38**	-23.14**
CMS7A×AV46	83.16**	59.96**	55.98**	374.99**	-2.57	-3.57
CMS7A×AV47	77.09**	63.78**	62.20**	399.99**	-0.24	0.28
CMS7A×AV48	65.29**	41.11**	40.08**	366.66**	-14.05	-13.40
CMS7A×AV49	-16.47	57.68**	52.93**	134.72*	-3.96	-5.45
CMS7A×AV53	27.44	61.98**	58.78**	259.82**	-1.34	-1.83
CMS7A×AV59	-11.45	31.61*	30.00*	149.99*	-19.84*	-19.63*
CMS7A×AV99	-61.83*	67.03**	66.70**	0.00	-11.08	-10.45
CMS7A×AV100	23.97	35.83*	31.62*	249.99**	-17.27	-18.63*
CMS7A×PDL1	-30.87	131.11**	129.05**	0.00	-25.18**	-25.43**
CMS7A×S343	94.80**	8.33	9.24	449.99**	-66.31**	-66.65**
CMS8A×AV2	24.40	85.25**	82.55**	244.99**	-5.50	-5.95
CMS8A×AV16	-5.35	7.53	7.49	162.49*	0.72	0.20
CMS8A×AV31	42.78	6.36	5.76	231.24**	1.01	0.48
CMS8A×AV43	67.29*	-10.15	-8.98	327.13**	-10.79	-11.71
CMS8A×AV44	103.51**	0.00	0.00	338.88**	3.60	2.54
CMS8A×AV46	97.12**	-1.19	0.03	411.18**	2.36	0.29
CMS8A×AV47	116.35**	0.00	0.00	499.99**	3.60	2.54
CMS8A×AV48	80.29**	-5.21	-4.23	399.99**	-1.80	-2.29
CMS8A×AV49	58.65*	-2.12	-2.12	339.99**	1.40	0.37
CMS8A×AV53	82.86**	-1.98	-1.44	407.13**	-2.45	-1.91
CMS8A×AV59	33.21	0.99	0.46	269.44**	-0.10	-0.61
CMS8A×AV99	-17.30	77.84**	76.35**	116.66	-5.32	-5.27
CMS8A×AV100	26.20	33.09**	-1.69	249.99**	2.36	0.80
CMS8A×PDL1	139.05**	156.00**	158.27**	245.82**	-17.12	-15.92
CMS8A×S343	72.78**	17.97	6.79	379.16**	-63.31**	-67.40**
CMS9A×AV2	11.64	60.77**	63.54**	133.33*	-17.99*	-15.75
CMS9A×AV16	19.62	8.76	8.71	149.99*	1.87	1.34
CMS9A×AV31	139.24**	-2.50	-1.39	399.99**	-7.41	-6.31
CMS9A×AV43	177.12**	-16.40	-13.90	479.15**	-18.20*	-16.48
CMS9A×AV44	136.25**	-14.71	-13.50	393.74**	-16.55	-15.35
CMS9A×AV46	31.01	-1.68	-2.19	173.80*	-3.80	-4.28
CMS9A×AV47	151.20**	3.68	4.16	424.99**	1.44	1.94
CMS9A×AV48	111.90**	5.88	4.77	342.85**	3.60	2.54
CMS9A×AV49	148.81**	-0.74	-1.25	419.99**	-2.88	-3.36
CMS9A×AV53	134.45**	-0.52	-0.51	389.99**	-2.66	-2.63
CMS9A×AV59	158.38**	-7.77	-7.69	439.99**	-9.76	-9.66
CMS9A×AV99	-4.30	62.16**	65.75**	100.00	-13.67	-10.97

CMS9A×AV100	53.11	34.69**	4.77	219.99**	3.60	2.54
CMS9A×PDL1	153.46**	220.00**	214.96**	266.66**	3.60	2.54
CMS9A×S343	114.51**	-7.47	-6.70	348.32**	-71.22**	-71.52**
CMS10A×AV2	-31.79	87.60**	85.86**	91.66	-4.30	-4.25
CMS10A×AV16	-16.96	5.60	6.66	133.33*	-1.09	-0.57
CMS10A×AV31	-5.17	9.09	7.91	119.99	3.60	2.54
CMS10A×AV43	-21.67	1.52	3.89	100.00	0.79	0.78
CMS10A×AV44	19.23	-3.97	-2.97	157.14*	-0.51	-0.51
CMS10A×AV46	83.16**	-1.39	1.36	374.99**	2.16	1.62
CMS10A×AV47	-6.29	0.00	0.00	163.33*	3.60	2.54
CMS10A×AV48	6.76	0.00	0.50	199.99**	3.60	2.54
CMS10A×AV49	-11.03	0.00	0.00	149.99*	3.60	2.54
CMS10A×AV53	6.76	4.10	3.02	199.99**	3.60	2.54
CMS10A×AV59	-28.83	0.36	0.88	99.99	-0.72	-0.20
CMS10A×AV99	-61.83*	84.86**	84.20**	0.00	-1.58	-1.05
CMS10A×AV100	42.35	32.82**	-0.89	299.99**	2.16	1.62
CMS10A×PDL1	-30.87	213.33**	209.97**	0.00	1.44	0.91
CMS10A×S343	-27.94	-21.35	-24.05	102.50	-75.54**	-76.82**
CMSUAA×AV2	-18.80	13.50	15.23	80.00	-42.10**	-40.64**
CMSUAA×AV16	-2.25	1.94	2.48	116.66	-4.52	-4.47
CMSUAA×AV31	72.93*	-3.54	-2.96	283.33**	-8.39	-7.79
CMSUAA×AV43	7.14	-3.42	-1.11	137.50*	-4.11	-4.07
CMSUAA×AV44	50.70	-38.06**	-36.06**	225.00**	-35.83**	-34.43**
CMSUAA×AV46	20.30	-8.73	-5.63	166.66*	-5.45	-5.39
CMSUAA×AV47	-6.95	-9.38	-8.38	106.25	-6.11	-6.05
CMSUAA×AV48	-7.89	-2.08	-1.09	104.16	1.44	0.91
CMSUAA×AV49	-3.33	-6.94	-6.44	114.28	-3.60	-4.07
CMSUAA×AV53	63.37*	-7.83	-6.72	262.13**	-8.27	-7.16
CMSUAA×AV59	21.16	-20.00*	-18.24*	168.56*	-20.86*	-19.11*
CMSUAA×AV99	-28.27	71.89**	63.84**	59.00	-8.49	-11.99
CMSUAA×AV100	91.73**	25.96*	-5.98	324.99**	-3.12	-3.60
CMSUAA×PDL1	22.82	107.45**	93.82**	77.68	-32.84**	-36.90**
CMSUAA×S343	90.23**	8.72	2.91	321.66**	-66.19**	-68.58**

*Significance at $p = 0.05$; **Significance at $p = 0.01$; ***Significance at $p = 0.001$

DAS: days after sowing.



Supplementary Fig. 1. Disease progress curves and area under the disease progress curve (AUDPC) estimates showing changes in chilli leaf curl virus disease (ChiLCVD) severity at 30, 60 and 100 days after sowing (DAS) among (a) CMS6A × S343; (b) CMS7A × S343; (c) CMS8A × S343; (d) CMS9A × S343; (e) CMS10A × S343; (f) CMSUAA × S343.