

Table s1 Summary of average (\pm standard error) annual AAT, ARH, AAR, AAS, yield, and sucrose content of the sites across all years.

Site	Site-year	AAT/ $^{\circ}$ C		ARH/%		AAR/mm		AAS/h		Yield/t		Sucrose content/%	
		Mean \pm standard error	CV/%	Mean \pm standard error	CV	Mean \pm standard error	CV/%	Mean \pm standard error	CV/%	Mean \pm standard error	CV%	Mean \pm standard error	CV
S1	11	18.21 \pm 0.28	1.52	79.88 \pm 1.7	2.13	137.06 \pm 16.72	12.20	155.42 \pm 11.44	7.36	3.87 \pm 0.37	9.68	14.71 \pm 0.42	2.83
S2	11	17.16 \pm 0.31	1.83	71.82 \pm 2.32	3.23	98.30 \pm 10.41	10.59	172.09 \pm 23.05	13.39	3.60 \pm 0.53	14.35	14.32 \pm 0.61	4.26
S3	6	20.38 \pm 0.54	2.67	76.66 \pm 2.34	3.05	101.99 \pm 18.79	18.43	140.99 \pm 11.75	8.33	3.02 \pm 0.43	14.30	13.66 \pm 0.81	5.94
S4	11	19.90 \pm 0.32	1.58	71.91 \pm 2.33	3.24	101.50 \pm 15.50	15.27	185.33 \pm 10.67	5.76	3.70 \pm 0.24	6.36	14.48 \pm 0.31	2.12
S5	10	17.65 \pm 0.46	2.59	76.15 \pm 2.12	2.78	82.64 \pm 14.40	17.43	129.67 \pm 6.73	16.41	4.31 \pm 1.01	23.65	13.10 \pm 1.03	7.84
S6	10	20.85 \pm 0.59	2.82	72.15 \pm 1.59	2.2	68.60 \pm 9.99	14.56	168.22 \pm 15.80	9.39	3.44 \pm 0.64	18.52	14.61 \pm 0.47	4.71
S7	3	18.37		82.07		187.58		162.2		4.61		14.41	
S8	9	19.26 \pm 0.63	3.28	72.94 \pm 2.53	3.47	86.65 \pm 17.45	19.69	173.48 \pm 21.37	12.32	3.48 \pm 0.57	16.39	13.97 \pm 0.57	4.06
S9	9	20.93 \pm 0.30	1.42	73.37 \pm 2.93	4.00	98.24 \pm 12.18	12.40	181.29 \pm 15.77	8.70	2.66 \pm 0.74	20.23	14.26 \pm 0.48	3.34
S10	10	20.19 \pm 0.29	1.43	75.90 \pm 2.51	3.31	135.67 \pm 13.60	10.02	186.00 \pm 12.71	6.83	3.12 \pm 0.40	12.82	14.21 \pm 0.41	2.91
S11	10	18.66 \pm 0.20	1.05	76.77 \pm 2.13	2.78	104.68 \pm 17.72	16.93	195.51 \pm 18.25	9.34	4.21 \pm 0.57	13.55	13.90 \pm 0.60	4.32
S12	11	18.23 \pm 0.18	0.98	68.17 \pm 2.27	3.33	89.14 \pm 11.48	12.88	197.79 \pm 16.38	8.28	3.42 \pm 0.28	8.05	14.53 \pm 0.37	2.56
S13	11	19.58 \pm 0.19	0.98	76.37 \pm 2.50	3.28	113.46 \pm 17.15	15.12	184.32 \pm 20.30	11.01	4.75 \pm 0.52	11.00	14.45 \pm 0.44	3.02
S14	10	20.32 \pm 0.26	1.26	75.27 \pm 1.69	2.25	124.48 \pm 16.20	13.01	174.18 \pm 5.50	3.15	4.08 \pm 0.41	10.05	14.15 \pm 0.37	2.58
S15	11	19.46 \pm 0.43	2.23	77.25 \pm 2.63	3.41	108.18 \pm 9.86	9.11	162.83 \pm 9.85	6.05	4.09 \pm 0.57	13.98	14.03 \pm 2.85	2.85
S16	10	22.04 \pm 0.32	1.47	79.96 \pm 1.06	1.33	128.59 \pm 14.52	11.29	165.78 \pm 17.98	10.85	3.02 \pm 0.35	11.54	14.52 \pm 0.39	2.66
S17	11	20.39 \pm 0.20	0.96	81.64 \pm 0.82	1.01	108.44 \pm 14.54	13.41	182.17 \pm 14.53	7.98	4.01 \pm 0.61	15.33	15.09 \pm 1.03	6.8
S18	9	21.03 \pm 0.28	1.34	74.39 \pm 2.92	3.93	111.43 \pm 11.75	10.55	192.57 \pm 15.86	8.24	4.89 \pm 0.32	6.62	15.11 \pm 0.41	2.7
S19	9	18.05 \pm 0.40	2.23	66.06 \pm 2.36	3.58	73.31 \pm 11.50	15.69	193.80 \pm 14.47	7.47	3.13 \pm 0.51	16.18	14.87 \pm 0.67	4.49
S20	10	18.42 \pm 0.57	3.11	71.48 \pm 2.22	3.11	69.03 \pm 11.03	15.97	179.56 \pm 11.33	6.31	3.91 \pm 1.29	32.95	14.27 \pm 0.68	4.75
S21	11	20.18 \pm 0.25	1.25	71.54 \pm 2.92	4.08	78.77 \pm 10.48	13.30	208.33 \pm 13.90	6.67	4.01 \pm 0.30	7.39	14.56 \pm 0.26	1.77
S22	3	18.63		74.00		79.85		176.86		4.00		13.47	
S23	11	19.61 \pm 0.25	12.6	77.64 \pm 1.52	16.6	153.19 \pm 9.00	5.87	172.74 \pm 10.64	6.16	3.30 \pm 1.31	39.59	13.96 \pm 0.49	3.48
S24	11	20.37 \pm 0.20	0.99	74.15 \pm 2.21	2.98	114.78 \pm 20.09	17.51	196.07 \pm 15.72	8.02	4.62 \pm 0.33	7.22	14.56 \pm 0.53	3.67
S25	11	20.55 \pm 0.38	1.86	68.06 \pm 2.36	3.46	67.98 \pm 15.41	22.67	194.90 \pm 18.31	9.39	3.43 \pm 0.62	18.16	14.27 \pm 0.55	3.86
S26	10	20.03 \pm 0.36	1.80	77.33 \pm 1.45	1.88	128.54 \pm 16.52	12.85	169.65 \pm 11.48	6.77	3.36 \pm 0.29	8.62	14.64 \pm 0.40	2.71

Footnote: AAT, Average air temperature; ARH, Average relative humidity; ARA, Average rainfall amount; ASD, Average sunshine duration.

Table s2 Summary of average (\pm standard error) AAT, ARH, AAR, AAS, yield, and sucrose content of the sites across all years.

Crop /Year	Year-Site	AAT/ $^{\circ}$ C			ARH/%			AAR/mm		AAS/h		Yield/t			Sucrose content/%		
		Mean standard error	\pm	CV/%	Mean standard error	\pm	CV	Mean \pm standard error	CV/%	Mean \pm standard error	CV/%	Mean standard error	\pm	CV/%	Mean standard error	\pm	CV
2005/2006	25	19.63 \pm 1.11		5.65	74.58 \pm 4.45		5.96	97.78 \pm 31.27	31.98	173.91 \pm 19.95	11.47	3.75 \pm 0.71		19.43	14.05 \pm 0.80		5.72
2006/2007	24	19.45 \pm 1.19		6.11	74.82 \pm 3.85		5.14	107.51 \pm 31.99	29.76	175.26 \pm 22.49	12.83	3.68 \pm 1.31		3.36	14.03 \pm 0.49		3.50
2007/2008	26	19.07 \pm 1.24		6.52	74.98 \pm 3.66		4.88	114.63 \pm 27.23	23.76	167.89 \pm 19.29	11.49	3.87 \pm 0.72		18.63	14.05 \pm 0.60		4.30
2008/2009	26	19.37 \pm 1.17		6.04	74.80 \pm 4.23		5.65	110.67 \pm 30.53	27.58	161.78 \pm 22.46	13.88	3.78 \pm 0.60		15.76	14.60 \pm 0.54		3.70
2009/2010	23	19.65 \pm 1.15		5.85	71.69 \pm 5.73		7.99	90.93 \pm 30.14	33.15	178.30 \pm 22.38	12.55	3.94 \pm 1.32		33.43	14.80 \pm 0.44		2.96
2010/2011	25	19.76 \pm 1.20		6.07	74.22 \pm 5.09		6.86	107.66 \pm 36.91	34.29	172.32 \pm 25.85	15.00	3.54 \pm 0.77		21.82	14.21 \pm 0.56		3..96
2011/2012	24	19.53 \pm 1.12		5.74	75.95 \pm 5.00		6.59	104.87 \pm 30.74	29.31	180.07 \pm 25.39	14.10	3.57 \pm 0.75		21.13	14.42 \pm 0.63		4.40
2012/2013	24	19.96 \pm 1.26		6.29	73.45 \pm 5.13		6.98	95.00 \pm 32.53	34.24	188.81 \pm 22.93	12.14	3.53 \pm 0.73		20.74	14.52 \pm 0.91		6.30
2013/2014	25	19.41 \pm 1.19		6.15	73.66 \pm 5.04		6.85	111.67 \pm 34.35	30.76	187.91 \pm 17.21	9.16	3.76 \pm 0.71		18.9	14.00 \pm 1.10		7.85
2014/2015	24	19.81 \pm 5.98		5.98	74.64 \pm 5.36		7.18	108.99 \pm 33.84	31.05	192.02 \pm 21.06	10.97	3.78 \pm 0.74		19.51	14.27 \pm 0.64		4.48
2015/2016	26	19.71 \pm 1.19		6.06	76.07 \pm 4.52		5.95	109.33 \pm 31.92	29.19	173.24 \pm 13.67	7.89	3.81 \pm 0.69		18.10	14.16 \pm 0.83		5.87

Footnote: AAT, Average air temperature; ARH, Average relative humidity; ARA, Average rainfall amount; ASD, Average sunshine duration.