

**Table S1.** Mean performance of *E. procerus* derived hybrids and standard varieties during the year 2018-19

Clones	Tiller 60 DAP (000- ha)	Tiller 90D AP (000- ha)	Tiller 120 DAP (000-ha)	PH (cm)	CD (cm)	JW (kg)	JE (%)	Brix (%)	Pol % (%)	Pur (%)	SCW (kg)	Fibre (%)	NMC (000- ha)	CY (t/ha)	NBI	Chl (µg/cm <sup>2</sup> )	Flav	Anth	LA (cm <sup>2</sup> )
Co 0238	146.67	150.26	165.19	233.33	2.47	2.58	47.34	20.51	18.21	88.84	1.08	14.19	87.41	92.69	23.83	28.41	1.20	0.18	203.12
Co 06027	88.89	84.44	83.70	186.67	2.97	3.16	53.70	20.56	17.95	87.28	0.92	14.70	75.37	69.55	33.03	38.70	1.18	0.13	277.25
CoJ 64	112.59	126.67	129.63	140.00	1.87	1.06	40.16	20.32	17.98	88.49	0.47	14.82	97.04	44.06	21.27	29.11	1.38	0.12	273.02
CoS 767	108.89	125.93	132.59	136.67	1.83	0.97	39.58	19.71	16.57	84.01	0.58	14.57	81.85	47.09	30.01	37.02	1.24	0.15	256.21
CoS 8436	110.37	104.44	140.00	190.00	2.23	1.50	37.27	19.36	16.81	86.62	0.65	13.54	96.30	63.61	28.69	34.61	1.22	0.15	237.64
GU 04(28)EO-2	127.37	103.70	171.85	243.33	1.50	0.27	12.29	13.68	9.14	66.65	0.35	21.34	102.22	35.15	38.04	46.84	1.16	0.12	191.72
GU 12-16	137.04	129.63	148.89	220.00	1.80	0.98	28.87	17.16	14.75	85.67	0.65	20.59	102.96	65.23	33.37	38.63	1.15	0.15	269.72
GU 12-19	191.11	219.26	261.48	226.67	1.87	1.18	31.13	17.27	14.74	85.19	0.58	22.46	130.37	72.90	41.23	38.90	0.95	0.13	213.01
GU 12-21	93.33	99.56	120.00	193.33	2.00	0.84	30.89	15.20	12.23	80.20	0.58	21.13	134.81	77.40	35.54	37.73	1.05	0.14	223.67
GU 12-22	67.04	81.00	97.78	146.67	2.43	0.94	36.59	16.08	13.26	82.42	0.68	19.84	92.59	62.70	26.63	29.43	1.11	0.18	254.41
GU 12-23	102.78	100.37	114.44	213.33	2.00	1.27	36.33	16.61	14.34	85.34	0.87	19.45	83.70	72.38	31.89	38.78	1.26	0.15	236.33
GU 12-26	131.85	157.78	197.04	253.33	1.97	1.50	37.08	18.66	16.28	87.24	0.75	17.96	92.22	68.37	33.64	39.53	1.17	0.16	185.56
GU 12-27	169.63	174.81	155.56	263.33	2.07	1.59	35.43	16.36	13.97	85.33	0.62	17.93	120.74	74.92	34.99	34.50	1.01	0.15	220.28
GU 12-28	169.63	167.41	198.00	243.33	1.83	0.99	30.71	16.64	12.51	75.49	0.81	24.20	101.48	81.40	37.51	39.89	1.07	0.14	244.35
GU 12-29	102.96	132.59	220.00	156.67	1.67	0.77	31.26	16.04	11.78	72.93	0.46	22.34	130.44	57.46	30.26	35.88	1.19	0.16	254.40
GU 12-30	210.00	220.59	182.96	243.33	1.73	1.03	31.68	16.51	13.90	84.27	0.89	24.92	110.67	91.88	20.72	25.73	1.27	0.16	233.55
GU 12-31	158.52	146.67	147.33	233.33	2.07	1.24	34.71	15.85	13.34	84.10	0.66	22.47	119.85	78.58	36.48	41.84	1.16	0.14	303.59
GU 12-33	131.11	149.63	115.56	193.33	1.70	0.73	29.30	15.96	13.15	81.98	0.54	22.94	113.33	61.76	41.93	36.70	0.89	0.13	247.83
GU 12-34	105.93	115.56	159.78	173.33	2.13	1.16	36.77	18.42	15.69	85.45	0.62	19.92	111.11	68.17	35.12	36.26	1.04	0.14	271.68
GU 12-38	173.33	169.63	160.74	223.33	2.00	1.63	40.66	18.31	16.18	88.48	1.03	23.94	95.19	99.16	27.42	31.47	1.15	0.15	263.98
GM	131.95	138.00	155.13	205.67	2.01	1.27	35.09	17.46	14.64	83.30	0.69	19.66	103.98	69.22	32.08	36.00	1.14	0.15	243.07
Minimum	67.04	81.00	83.70	136.67	1.50	0.27	12.29	13.68	9.14	66.65	0.35	13.54	75.37	35.15	20.72	25.73	0.89	0.12	185.56
Maximum	210.00	220.59	261.48	263.33	2.97	3.16	53.70	20.56	18.21	88.84	1.08	24.92	134.81	99.16	41.93	46.84	1.38	0.18	303.59
std	36.34	38.46	41.63	38.28	0.32	0.63	7.94	1.88	2.29	5.52	0.19	3.56	16.61	15.64	5.85	4.96	0.11	0.01	29.71

PH- Plant height, CD- cane diameter, JE-Juice extraction, , Pol%- Sucrose % in juice, SCW- Single cane weight, CY- Cane yield, NBI- Nitrogen balance index, Chl-Chlorophyll concentration, Flav- Flavonoids index, Anth- Anthocaynin index and LA- leaf area, GM-Grand Mean, std- standard deviation.

**Table S2.** Mean performance of *E. procerus* derived hybrids and standard varieties during the year 2019-20

Clones	Tiller 60 DAP (000- ha)	Tiller 90D AP (000- ha)	Tiller 120 DAP (000- ha)	PH (cm)	CD (cm)	JW (kg)	JE (%)	Brix (%)	Pol % (%)	Pur (%)	SCW (kg)	Fibre (%)	NMC (000- ha)	CY (t/ha)	NBI	Chl (µg/cm <sup>2</sup> )	Flav	Anth	LA (cm <sup>2</sup> )
Co 0238	140.00	70.00	58.15	238.33	2.35	2.41	45.22	18.84	16.17	85.88	1.08	22.84	87.31	90.50	29.34	38.41	1.33	0.13	274.55
Co 06027	88.89	82.96	70.00	182.67	2.84	3.06	52.21	19.46	16.83	86.59	0.49	16.24	117.04	47.59	29.49	33.20	1.14	0.14	223.00
CoJ 64	112.59	69.26	63.33	142.00	1.47	1.26	43.21	18.41	15.70	85.22	0.47	11.53	97.04	44.06	19.38	28.80	1.52	0.15	217.64
CoS 767	108.89	80.37	64.44	137.67	1.89	0.99	34.21	18.70	16.00	85.54	0.59	14.42	78.52	46.47	31.38	37.20	1.19	0.14	251.54
CoS 8436	110.37	69.63	57.78	184.74	2.03	1.47	37.21	17.86	14.88	83.24	0.72	13.83	96.30	72.89	23.71	35.40	1.49	0.15	213.30
GU 04(28)EO-2	79.26	67.78	61.11	240.30	1.54	0.29	15.34	14.85	11.36	76.34	0.38	21.81	102.22	38.12	40.60	44.30	1.10	0.14	247.42
GU 12-16	137.04	66.67	64.07	120.12	1.78	0.94	29.15	16.21	12.83	79.16	0.66	19.23	102.96	66.03	32.99	35.11	1.07	0.13	259.87
GU 12-19	191.11	85.19	85.56	230.47	1.97	1.08	33.15	18.23	15.51	85.05	0.58	17.89	130.37	72.90	38.83	36.19	0.93	0.12	205.53
GU 12-21	80.00	92.59	77.78	173.13	2.01	0.88	28.66	15.52	12.71	81.77	0.58	20.36	134.81	77.40	33.63	37.17	2.16	0.16	218.62
GU 12-22	50.37	75.56	67.41	136.87	2.33	0.92	34.84	16.01	12.69	79.04	0.49	16.92	99.26	48.79	21.46	28.84	1.36	0.15	237.07
GU 12-23	77.78	54.81	52.59	253.43	1.88	1.21	34.15	16.34	13.10	79.69	0.85	19.20	83.70	71.23	41.73	40.08	0.97	0.13	213.20
GU 12-26	131.85	65.93	61.85	248.37	1.87	1.59	35.15	18.00	15.27	84.77	0.74	18.92	77.22	56.04	33.92	40.98	1.20	0.16	234.89
GU 12-27	169.63	90.15	97.41	263.33	2.17	1.46	31.44	15.64	12.58	80.21	0.72	18.86	102.22	73.87	30.27	33.56	1.11	0.14	218.03
GU 12-28	169.63	75.56	60.74	242.33	1.73	1.09	30.21	15.37	11.71	76.29	0.77	18.74	82.74	63.39	37.33	40.49	1.11	0.13	253.28
GU 12-29	102.96	63.70	62.96	159.47	1.47	0.79	33.48	17.13	13.54	78.28	0.43	20.42	120.44	43.97	24.31	30.44	1.25	0.15	226.00
GU 12-30	200.00	93.70	83.96	247.35	1.83	1.01	30.22	16.77	13.54	80.92	1.15	21.60	81.03	92.85	20.14	25.58	1.27	0.17	208.62
GU 12-31	158.52	104.07	99.63	231.32	2.14	1.20	34.21	15.40	12.23	79.30	0.64	18.85	109.52	68.03	27.14	30.29	1.12	0.16	284.53
GU 12-33	97.78	61.11	62.85	190.23	1.08	0.63	30.55	16.65	14.00	83.62	0.65	22.75	101.00	62.14	32.10	32.76	1.04	0.14	216.37
GU 12-34	72.59	76.30	66.67	172.33	2.24	1.16	35.14	16.74	13.40	79.79	0.51	17.05	111.11	60.09	38.38	39.46	1.03	0.11	269.70
GU 12-38	173.33	100.56	87.78	220.33	1.94	1.63	39.55	17.61	15.17	85.90	1.04	17.11	87.19	90.03	24.71	27.93	1.14	0.16	270.72
GM	122.63	77.29	70.30	200.74	1.93	1.25	34.37	16.99	13.96	81.83	0.68	18.43	100.11	64.32	30.54	34.81	1.23	0.14	237.19
Minimum	50.37	54.81	52.59	120.12	1.08	0.29	15.34	14.85	11.36	76.29	0.38	11.53	77.22	38.12	19.38	25.58	0.93	0.11	205.53
Maximum	200.00	104.07	99.63	263.33	2.84	3.06	52.21	19.46	16.83	86.59	1.15	22.84	134.81	92.85	41.73	44.30	2.16	0.17	284.53
Std	42.17	13.23	13.22	10.26	0.09	0.14	1.65	1.31	1.57	3.26	0.21	2.87	16.32	16.12	6.64	4.94	0.26	0.02	24.21

PH- Plant height, CD- cane diameter, JE-Juice extraction, , Pol%- Sucrose % in juice, SCW- Single cane weight, CY- Cane yield, NBI- Nitrogen balance index, Chl-Chlorophyll concentration , Flav- Flavonoids index, Anth- Anthocaynin index and LA- leaf area, GM-Grand Mean, std- standard deviation.