Table 1. US #1 & total carrot yield for the Oakes Irrigation Research Site 2002 cello carrot hybrid performance trial.

				US #1 carrots							
	Seed	Early	Early	yield (by root diameter)				% of total yield		Total	Total
Hybrid	source	stand	vigor	>1.5"	1.0 to 1.5"	_ to 1"	total	>1.0"	total	yield	roots
		--------- 1 to 10 -------		---------- tons/acre ----------				-------- % --------		tons/acre	1000s/acre
Harvested August 8											
Infinity (1907)	BE	7.3 abc[1]	7.8 abc	0.0	2.8 e	5.5 a	8.3 ab	25 c	72 a	11.4	282
Tempo	VL	7.5 ab	8.0 ab	0.0	7.0 ab	0.6 c	7.6 abc	52 ab	56 a-e	13.3	311
Bangor	BE	6.5 b-e	6.8 cd	0.2	4.5 cde	0.1 c	4.8 de	41 bc	42 e	12.1	278
Bergen	BE	6.3 cde	6.8 cd	0.1	6.5 abc	0.1 c	6.7 a-d	44 ab	45 de	14.8	360
Bolero	VL	8.0 a	8.8 a	0.2	7.9 a	0.9 c	9.0 a	61 a	70 abc	13.7	299
Bradford	BE	7.3 abc	7.5 bc	0.4	2.5 e	0.0 c	2.9 e	23 c	23 f	12.8	295
Bremen	BE	6.0 de	6.8 cd	0.0	6.3 abc	0.7 c	7.0 a-d	55 ab	62 a-d	12.2	257
Florida (1909)	BE	7.0 a-d	7.8 abc	0.6	5.4 bcd	0.1 c	6.2 bcd	51 ab	52 cde	11.8	270
Fontana	BE	5.7 e	6.1 d	0.6	3.9 de	0.3 c	4.8 de	51 ab	55 b-e	9.0	203
Idaho	BE	7.3 abc	7.5 bc	0.0	6.1 abc	2.3 b	8.4 ab	50 ab	69 ab	12.2	296
VAC-30 (Siroco)	VL	6.5 b-e	6.8 cd	0.0	4.9 bcd	0.7 c	5.6 cd	44 ab	51 de	11.4	298
C.V (%)		11	10	190	28	71	25	27	22	16	21
Probability		0.009	0.002	0.13	0.0001	<.0001	0.0003	0.005	0.0002	0.053	0.18
Harvested August 15											
Infinity (1907)	BE	7.3 abc	7.8 abc	0.1 e	8.6 bcd	2.8 a	11.5	60	79 a	15.0	293
Tempo	VL	7.5 ab	8.0 ab	0.1 e	11.6 ab	0.4 bc	12.2	70	73 ab	16.5	290
Bangor	BE	6.5 b-e	6.8 cd	2.5 abc	6.1 de	0.2 bc	8.8	60	61 bc	14.2	224
Bergen	BE	6.3 cde	6.8 cd	2.4 a-d	8.3 cde	0.4 bc	11.0	75	77 a	13.3	187
Bolero	VL	8.0 a	8.8 a	1.3 b-e	12.3 a	0.7 bc	14.3	72	75 ab	19.2	332
Bradford	BE	7.3 abc	7.5 bc	4.0 a	5.3 e	0.0 c	9.3	55	55 c	16.7	280
Bremen	BE	6.0 de	6.8 cd	1.5 b-e	9.0 bcd	0.3 bc	10.8	73	75 ab	14.4	218
Florida (1909)	BE	7.0 a-d	7.8 abc	2.7 abc	7.5 cde	0.2 bc	10.4	59	61 bc	16.8	304
Fontana	BE	5.7 e	6.1 d	2.8 ab	7.4 cde	0.3 bc	10.6	74	76 a	13.8	227
Idaho	BE	7.3 abc	7.5 bc	0.5 de	8.7 bcd	1.0 b	10.2	59	65 abc	15.6	283
VAC-30 (Siroco)	VL	6.5 b-e	6.8 cd	0.7 cde	10.5 abc	0.3 bc	11.4	69	70 ab	16.4	292
C. V. (%)		11	10	82	25	104	22	15	14	19	26
Probability		0.009	0.002	0.005	0.002	<.0001	0.22	0.055	0.03	0.29	0.17

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Table 1. US #1 & total carrot yield for the Oakes Irrigation Research Site 2002 cello carrot hybrid performance trial (continued).

				US #1 carrots							
	Seed	Early	Early	yield (by root diameter)				% of total yield		Total	Total

Hybrid	source	stand	vigor	>1.5"	1.0 to 1.5"	_ to 1"	total	>1.0"	total	yield	roots
		--------- 1 to 10 -------		---------- tons/acre ----------				-------- % --------		tons/acre	1000s/acre
Harvested August 21											
Infinity (1907)	BE	7.3 abc[1]	7.8 abc	0.9 d	12.9 ab	3.7 a	17.4	64 cde	81 a	21.5 abc	344 a
Tempo	VL	7.5 ab	8.0 ab	0.9 d	16.0 a	0.0 c	16.9	77 ab	77 a	21.8 abc	289 ab
Bangor	BE	6.5 b-e	6.8 cd	7.5 ab	6.8 d	0.0 c	14.3	73 abc	73 ab	20.6 abc	249 abc
Bergen	BE	6.3 cde	6.8 cd	4.1 bcd	8.4 cd	0.2 c	12.6	72 abc	73 ab	17.0 cd	213 bc
Bolero	VL	8.0 a	8.8 a	6.1 abc	12.5 ab	0.1 c	18.7	75 ab	75 a	25.0 a	313 a
Bradford	BE	7.3 abc	7.5 bc	8.2 a	5.6 d	0.0 c	13.9	56 e	56 c	24.1 a	298 ab
Bremen	BE	6.0 de	6.8 cd	3.5 cd	10.9 bc	0.1 c	14.5	63 cde	63 bc	22.7 ab	290 ab
Florida (1909)	BE	7.0 a-d	7.8 abc	6.5 abc	8.1 cd	0.1 c	14.7	59 de	59 c	24.2 a	335 a
Fontana	BE	5.7 e	6.1 d	3.5 cd	6.3 d	0.1 c	9.8	73 abc	73 ab	13.3 d	181 c
Idaho	BE	7.3 abc	7.5 bc	3.5 cd	11.0 bc	1.0 b	15.5	67 bcd	71 ab	21.7 abc	318 a
VAC-30 (Siroco)	VL	6.5 b-e	6.8 cd	3.2 cd	11.3 bc	0.2 c	14.7	79 a	80 a	18.2 bcd	265 abc
C.V. (%)		11	10	56	25	113	21	11	10	16	21
Probability		0.009	0.002	0.0014	<.0001	<.0001	0.06	0.0016	0.0005	0.006	0.047

[1]Values in the same column and date followed by the same letter are not significantly different at the 0.05 level. If no letters in column, then there were no statistically significant differences between values in that column.

Table 2. Root characteristics planted at 800,000 seeds/acre Oakes Irrigation Research Site 2001 cello carrot hybrid performance trial.

Hybrid	Seed source	Multiple root	Average length	Root diameter	Core diameter	Cortex color[1]	Core color[1]	Contrast[2]	Uniformity	Overall score	US #1 size
		%	---------- inches ----------			----- 1 to 4 -----		------ 1 to 5 -----		1 to 10	oz/root
Harvested August 8											
Infinity (1907)	BE	9	7.9 a[3]	0.87 c	0.43 e	2.9 a	3.6 ab	2.5	3.4	7.3 ab	1.6 ef
Tempo	VL	3	5.9 b	1.11 ab	0.48 de	2.8 a	3.3 abc	3.0	3.8	6.5 abc	1.9 def
Bangor	BE	2	5.9 b	1.20 ab	0.81 a	3.0 a	2.4 cd	2.8	3.9	5.5 cd	2.3 b
Bergen	BE	5	6.2 b	1.23 ab	0.79 ab	2.0 b	3.0 a-d	2.0	3.8	5.8 a-d	2.0 bcd
Bolero	VL	3	6.2 b	1.23 ab	0.75 abc	2.5 ab	2.0 d	3.3	3.8	6.5 abc	1.9 cde
Bradford	BE	2	5.9 b	1.25 a	0.75 abc	2.5 ab	2.6 cd	2.1	3.9	4.5 d	2.6 a
Bremen	BE	6	6.3 b	1.14 ab	0.73 abc	2.0 b	2.8 bcd	2.8	3.6	6.0 a-d	1.9 def
Florida (1909)	BE	4	5.9 b	1.13 ab	0.69 abc	2.0 b	3.3 abc	2.3	3.8	5.6 bcd	2.0 bcd
Fontana	BE	3	6.3 b	1.18 ab	0.75 abc	2.8 a	2.1 d	2.5	3.6	5.9 bcd	2.2 bc
Idaho	BE	8	6.4 b	1.07 b	0.64 bc	3.0 a	4.0 a	2.0	4.0	7.6 a	1.6 f
VAC-30 (Siroco)	VL	5	6.3 b	1.12 ab	0.62 cd	2.5 ab	2.6 cd	2.5	4.0	5.8 bcd	1.7 def
C.V (%)		89	8	10	15	15	23	23	12	19	10
Probability		0.22	0.0002	0.005	0.0001	0.003	0.004	0.09	0.80	0.047	<.0001

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Table 2. Root characteristics planted at 800,000 seeds/acre Oakes Irrigation Research Site 2002 cello carrot hybrid performance trial (continued).

Hybrid	Seed source	Multiple root	Average length	Root diameter	Core diameter	Cortex color[1]	Core color[1]	Contrast[2]	Uniformity	Overall score	US #1 size
		%	---------- inches ----------			----- 1 to 4 -----		------ 1 to 5 -----		1 to 10	oz/root
Harvested August 15											
Infinity (1907)	BE	10	7.6 a[3]	1.09	0.54 bc	2.6	3.8 a	2.4 bcd	3.1	6.8	2.0 e
Tempo	VL	5	6.3 bc	1.07	0.46 c	2.8	2.8 bc	4.5 a	3.0	6.8	2.2 de
Bangor	BE	6	6.0 bc	1.28	0.80 a	2.3	3.4 abc	1.8 d	2.4	5.9	2.8 ab

Bergen	BE	6	6.7 ab	1.29	0.77 a	2.3	2.8 bc	2.3 bcd	2.8	6.8	2.8 ab
Bolero	VL	4	6.3 bc	1.27	0.62 abc	2.4	2.5 cd	2.5 bcd	3.1	6.9	2.4 cd
Bradford	BE	7	5.6 c	1.22	0.71 ab	2.5	3.3 abc	2.1 bcd	2.3	5.5	2.9 a
Bremen	BE	5	6.2 bc	1.25	0.69 ab	2.4	3.0 abc	2.8 bcd	2.6	6.3	2.7 ab
Florida (1909)	BE	5	6.1 bc	1.19	0.68 ab	2.5	3.1 abc	2.5 bcd	2.0	5.4	2.6 abc
Fontana	BE	3	6.3 bc	1.28	0.70 ab	2.5	1.8 d	1.9 cd	2.6	6.5	2.6 bc
Idaho	BE	1	6.8 ab	1.22	0.73 a	2.9	3.6 ab	3.0 b	2.5	6.0	2.1 de
VAC-30 (Siroco)	VL	10	6.5 bc	1.25	0.71 ab	2.3	2.9 abc	2.9 bc	2.9	6.8	2.2 de
C. V. (%)		72	11	10	19	21	21	29	23	14	8
Probability		0.41	0.035	0.18	0.03	0.76	0.005	0.002	0.25	0.16	<.0001
Harvested August 21											
Infinity (1907)	BE	8	7.9 a	1.10 c	0.54 de	3.0 b	3.8	2.5 bc	4.0 ab	8.5 a	2.3 e
Tempo	VL	8	6.2 cde	1.23 ab	0.49 e	3.0 b	3.3	4.5 a	4.1 a	6.8 bc	2.7 de
Bangor	BE	4	5.7 e	1.27 a	0.76 ab	2.8 bc	3.3	2.3 c	3.1 bcd	5.8 d	3.6 ab
Bergen	BE	8	6.8 bc	1.18 abc	0.71 abc	2.0 d	2.5	2.3 c	3.0 cde	6.0 cd	3.5 ab
Bolero	VL	4	6.4 b-e	1.21 abc	0.63 cd	2.5 bcd	2.5	2.3 c	2.6 cde	6.3 cd	3.2 bcd
Bradford	BE	6	5.9 de	1.29 a	0.77 a	2.1 cd	3.0	2.8 bc	2.4 de	5.5 d	3.9 a
Bremen	BE	7	6.4 b-e	1.29 a	0.70 abc	3.0 b	3.3	2.5 bc	2.8 cde	6.4 bcd	3.1 cd
Florida (1909)	BE	4	6.1 cde	1.21 abc	0.65 c	3.0 b	3.9	2.4 bc	2.3 de	5.8 d	3.2 bc
Fontana	BE	1	6.7 bcd	1.15 bc	0.65 bc	2.4 bcd	2.8	1.7 c	2.7 cde	6.0 cd	3.1 bcd
Idaho	BE	8	6.4 b-e	1.28 a	0.67 abc	3.8 a	3.3	3.6 ab	2.1 e	6.3 cd	2.5 e
VAC-30 (Siroco)	VL	3	6.9 b	1.26 ab	0.66 bc	2.3 cd	3.3	2.8 bc	3.4 abc	7.3 b	2.8 cde
C.V. (%)		57	8	6	11	18	25	33	23	10	11
Probability		0.27	0.0002	0.03	0.0004	0.0006	0.31	0.013	0.002	<.0001	<.0001

[1]Color: 1=yellow orange; 2=light orange; 3=medium orange; 4=dark orange.
[2]Contrast between cortex and core. The higher the number the lower the contrast.
[3]Values in the same column and date followed by the same letter are not significantly different at the 0.05 level. If no letters in column, then there were no statistically significant differences between values in that column.

Table 3. US #1 & total carrot yield for carrots in the Oakes Irrigation Research Site 2002 processing carrot hybrid performance trial.

Hybrid	Seed source	US #1 carrots yield (by root diameter) >1.5"	1.0 to 1.5"	total	US #1 carrots % of total yield >1.0"	total	Total yield	Total roots
		---------- tons/acre ----------			---------- % ----------		tons/acre	1000s/acre
Infinity (1907)	BE	12.9 fg[1]	8.4 ab	22.0	65	67	32.9	246
Tempo	VL	10.8 g	9.8 a	20.5	71	71	28.4	192
Bangor	BE	26.1 ab	3.2 c	29.4	71	71	40.7	188
Bergen	BE	18.6 c-f	4.5 bc	23.2	70	70	32.8	201
Bolero	VL	21.0 b-e	2.9 c	24.0	65	65	37.0	191
Bradford	BE	22.2 bcd	3.8 bc	26.0	69	69	37.7	234
Bremen	BE	15.0 efg	4.4 bc	19.8	59	60	32.8	221
Florida (1909)	BE	30.4 a	1.2 c	31.6	77	77	41.5	188
Fontana	BE	16.6 d-g	3.9 c	20.5	71	71	28.9	191
Idaho	BE	19.2 c-f	3.1 c	22.6	70	71	32.0	209
VAC-30 (Siroco)	VL	24.5 abc	3.7 c	28.2	71	71	39.5	194
C.V. (%)		23	67	24	13	13	18	22
Probability		<.0001	0.016	0.102	0.40	0.55	0.06	0.68

[1]Values in the same column followed by the same letter are not significantly different at the 0.05 level. If no letters in column, then there were no statistically significant differences between values in that column.

Table 4. Root characteristics of carrots in the Oakes Irrigation Research Site 2002 processing carrot hybrid performance trial.

Hybrid	Seed source	Multiple root	Average length	Root diameter	Core diameter	Contrast	Overall score	US #1 size
		%	---------- inches ----------			1 to 5	1 to 10	oz/root
Infinity (1907)	BE	18	8.6 a	1.57 bc	0.67 d	3.0	7.0 ab	4.4 e
Tempo	VL	17	7.8 abc	1.50 c	0.63 d	3.3	7.0 ab	4.9 e
Bangor	BE	8	7.1 cd	1.86 a	1.03 ab	1.5	5.8 bc	7.8 a
Bergen	BE	12	6.8 cde	1.83 a	1.13 a	1.8	6.8 ab	5.2 cde
Bolero	VL	14	7.2 c	1.82 a	0.80 cd	3.8	6.3 b	6.2 cd
Bradford	BE	11	6.1 e	1.72 abc	0.96 abc	2.4	5.8 bc	5.2 cde
Bremen	BE	12	7.3 c	1.70 abc	0.89 bc	2.3	6.3 b	4.8 e
Florida (1909)	BE	6	7.4 bc	1.88 a	0.92 bc	2.5	5.8 bc	7.5 ab
Fontana	BE	16	6.2 de	1.86 a	0.91 bc	2.8	4.5 c	5.0 de
Idaho	BE	10	8.3 ab	1.78 ab	0.91 bc	2.9	6.8 ab	5.0 de
VAC-30 (Siroco)	VL	14	7.5 bc	1.92 a	0.87 bc	2.8	7.8 a	6.5 bc
C.V (%)		54	9	8	14	43	14	15
Probability		0.33	0.0003	0.009	0.0003	0.33	0.0025	<.0001

[1]Values in the same column followed by the same letter are not significantly different at the 0.05 level. If no letters in column, then there were no statistically significant differences between values in that column.

Table 5. Root characteristics of carrots in the Oakes Irrigation Research Site 2002 processing carrot hybrid performance trial.

	Seed	Cortex	Core	Uni-	Dry	Dry

Hybrid	source	color[1]	color[1]	formity	matter	color[2]	Stand	Vigor
Infinity (1907)	BE	3.4	4.0 a[3]	3.6 b	13.7 a	3.0 a	8.0 a	8.0 ab
Tempo	VL	3.1	3.1 bc	3.6 b	10.9 c	1.3 d	6.8 bcd	7.8 abc
Bangor	BE	3.1	2.6 c	3.3 bc	11.5 bc	2.8 ab	5.8 d	6.8 cd
Bergen	BE	2.5	3.4 ab	3.4 bc	11.3 bc	1.2 d	6.2 cd	6.7 cd
Bolero	VL	3.4	3.1 bc	3.4 b	13.4 a	1.3 d	7.0 abc	8.3 a
Bradford	BE	3.5	3.7 ab	3.2 bc	11.4 bc	3.2 a	7.8 ab	8.0 ab
Bremen	BE	3.3	3.8 ab	3.3 bc	12.5 abc	2.5 abc	6.5 cd	6.8 cd
Florida (1909)	BE	3.1	4.0 a	3.8 ab	11.3 bc	2.8 ab	6.8 bcd	7.3 a-d
Fontana	BE	2.9	2.5 c	2.3 c	11.0 c	1.8 bcd	7.3 abc	7.3 a-d
Idaho	BE	3.5	3.8 ab	3.0 bc	11.7 bc	3.5 a	6.5 cd	7.0 bcd
VAC-30 (Siroco)	VL	3.0	3.9 a	4.8 a	12.7 ab	1.5 cd	6.8 bcd	6.3 d
C.V (%)		14	14	22	9	35	10	10
Probability		0.17	0.0003	0.03	0.01	0.0009	0.0065	0.0061

[1]Color: 1=yellow orange; 2=light orange; 3=medium orange; 4=dark orange.

[2]Dry color: 1is palest orange; 5 is darkest orange.

[3]Values in the same column followed by the same letter are not significantly different at the 0.05 level. If no letters in column, then there were no statistically significant differences between values in that column.