

# Quality and Storability of Trellised Greenhouse-Grown, Winter-Harvested, New Sweet Acorn Squash Hybrids

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## Supplementary Materials

**Table S1:** Fruit quality parameters of acorn squash fruits at harvest, according to cultivar and harvest sequence

**Figure S1:** Fruit weight by cultivar and harvest sequence over three years

**Figure S2:** Yield by cultivar and harvest sequence over three years

**Figure S3:** Identification and quantification of acorn squash carotenoids.

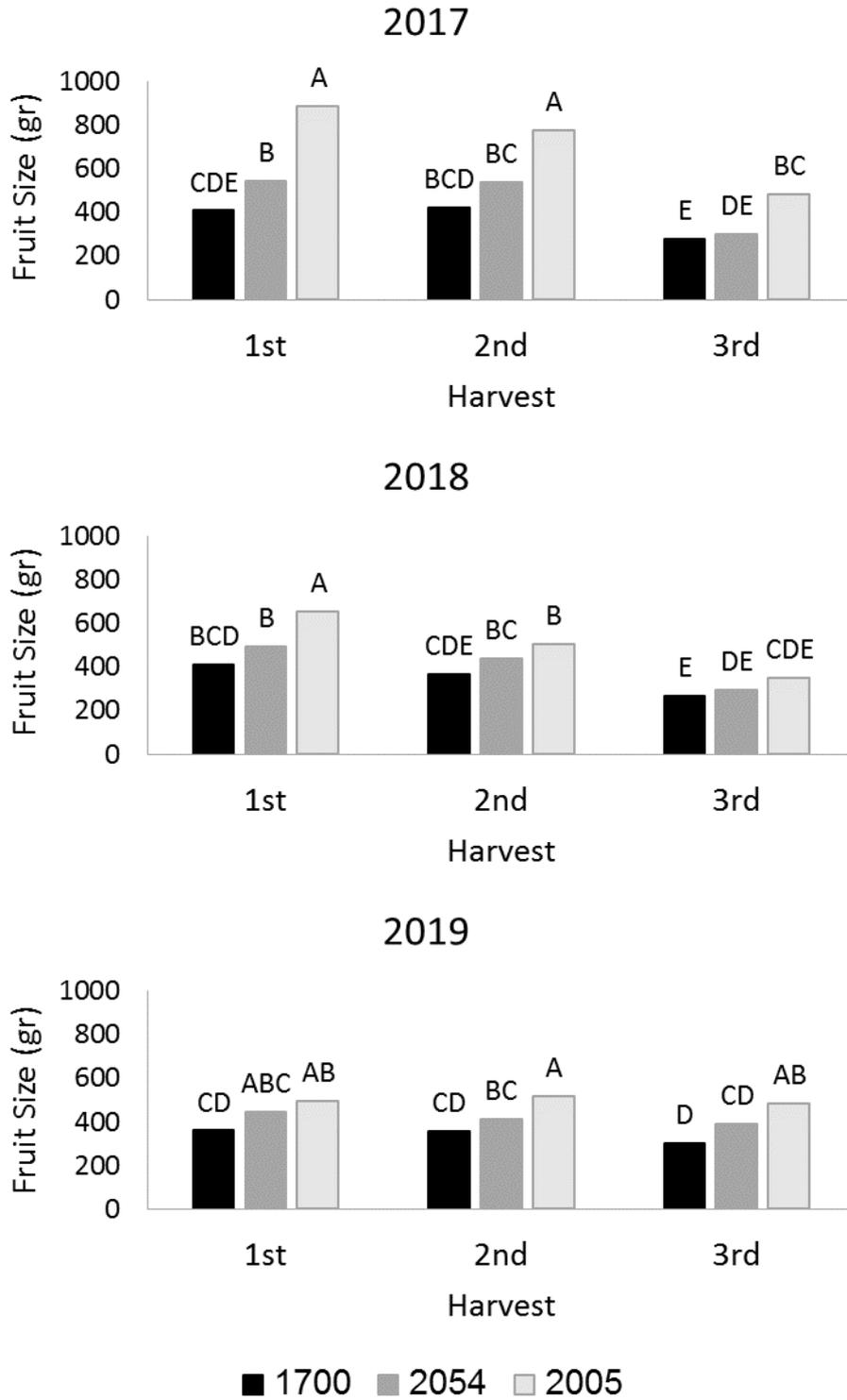
**Figure S4:** Hedonic tests of three acorn squash cultivars from two separate harvests (Harvest 1 and Harvest 2) after two months of storage, at 15°C Rh 95% and 20°C Rh 60%.

**Table S1.** Fruit quality parameters of acorn squash fruits at harvest according to cultivar and harvest sequence

Year-harvest	Cultivar <sup>x</sup>	Rind color (Hue <sup>o</sup> )	Flesh color (*a)	TSS (%)	Dry Weight (%)	Firmness (N)
2017 – 1 <sup>st</sup>	1700	231 f	4.5 abcdef	9.7 f	15.7 de	162 bcde
	2054	247 def	4.8 abcde	14.5 abcdef	20.3 cde	171 bcd
	2005	250 de	7.1 abc	11.3 def	18.9 cde	148 ef
2017 – 2 <sup>nd</sup>	1700	n.d. <sup>y</sup>	n.d.	18.7 abc	n.d.	n.d.
	2054			20.7 a		
	2005			20.4 a		
2017 – 3 <sup>rd</sup>	1700	192 g	n.d.	17.7 abcd	n.d.	226 a
	2054	201 g		13.7 bcdef		177 b
	2005	233 ef		9.4 f		207 a
2018 – 1 <sup>st</sup>	1700	276 ab	3.5 bcdef	15.4 abcdef	24.5 abcd	154 def
	2054	282 ab	2.0 def	15.7 abcdef	25.1 abcd	154 cdef
	2005	286 a	0.8 ef	11.1 def	20.1 cde	139 f
2018 – 2 <sup>nd</sup>	1700	266 abcd	5.9 abcd	19.5 ab	29.6 ab	171 bcd
	2054	282 abc	3.0 cdef	16.4 abcde	32.3 a	160 bcdef
	2005	282 abc	8.4 a	18.4 abc	25.8 abc	175 bc
2019 – 2 <sup>nd</sup>	1700	259 bcd	2.3 def	14.2 bcdef	20.7 cde	
	2054	281 a	0.6 f	11.1 ef	20.7 cde	n.d.
	2005	273 ab	2.6 def	11.4 ef	15.3 e	
2019 – 3 <sup>rd</sup>	1700	208 g	4.7 abcde	13.5 cdef	22.5 bcd	
	2054	233 f	3.4 bcdef	13.4 bcdef	23.1 bcd	n.d.
	2005	253 cd	7.2 ab	12.2 def	18.3 cde	
<b>LSD</b>		<b>15.8</b>	<b>1.39</b>	<b>1.80</b>	<b>2.59</b>	<b>6.3</b>
<b>Mean values at each harvest</b>						
2017 – 1 <sup>st</sup>		243 b	5.5 a	11.9 b	18.3 c	203 a
2017 – 2 <sup>nd</sup>		n.d.	n.d.	19.9 a	n.d.	n.d.
2017 – 3 <sup>rd</sup>		209 d	n.d.	13.6 b	n.d.	161 c
2018 – 1 <sup>st</sup>		281 a	2.1 b	14.1 b	23.2 b	149 b
2018 – 2 <sup>nd</sup>		277 a	5.8 a	18.1 a	29.2 a	169 b
2019 – 2 <sup>nd</sup>		271 a	1.8 b	12.2 b	18.9 c	n.d.
2019 – 3 <sup>rd</sup>		232 c	5.1 a	13.0 b	21.3 bc	n.d.
<b>LSD<sup>z</sup></b>		<b>8.9</b>	<b>0.80</b>	<b>1.01</b>	<b>1.46</b>	<b>3.6</b>
<b>Mean values of each cultivar</b>						
1700		239 c	4.2 a	15.5 a	22.6 a	178 a
2054		254 b	2.8 b	15.1 a	24.6 a	165 b
2005		263 a	5.2 a	13.5 b	19.7 b	167 b
<b>LSD</b>		<b>25.7</b>	<b>0.58</b>	<b>0.64</b>	<b>1.08</b>	<b>3.1</b>
<b>Table of Variance (F-value)</b>						
Harvest (Hr)		***	***	***	***	***
Cultivar (Cv)		***	***	**	***	***
Hr x Cv		***	*	***	NS	***

Table S1 – continued:

<sup>x</sup>Cultivars evaluated: 1700 = Hybrid 1700, 'Table Sugar'; 2054 = Hybrid 2054, 'Table Pastry'; 2005 = Hybrid 2005, 'Table Confection'. <sup>y</sup>n.d., not determined. <sup>z</sup>LSD, Least significant differences at  $\alpha = 0.05$ . Means within columns followed by the same letter are not significantly different at  $P \leq 0.05$ , based on the least significant differences test, \*\*\*, \*\*, \*, NS indicate statistical significance at  $P \leq 0.001$ , 0.01, 0.05 and not significant, respectively.



**Figure S1:** Fruit weight by cultivar and harvest sequence over three years.

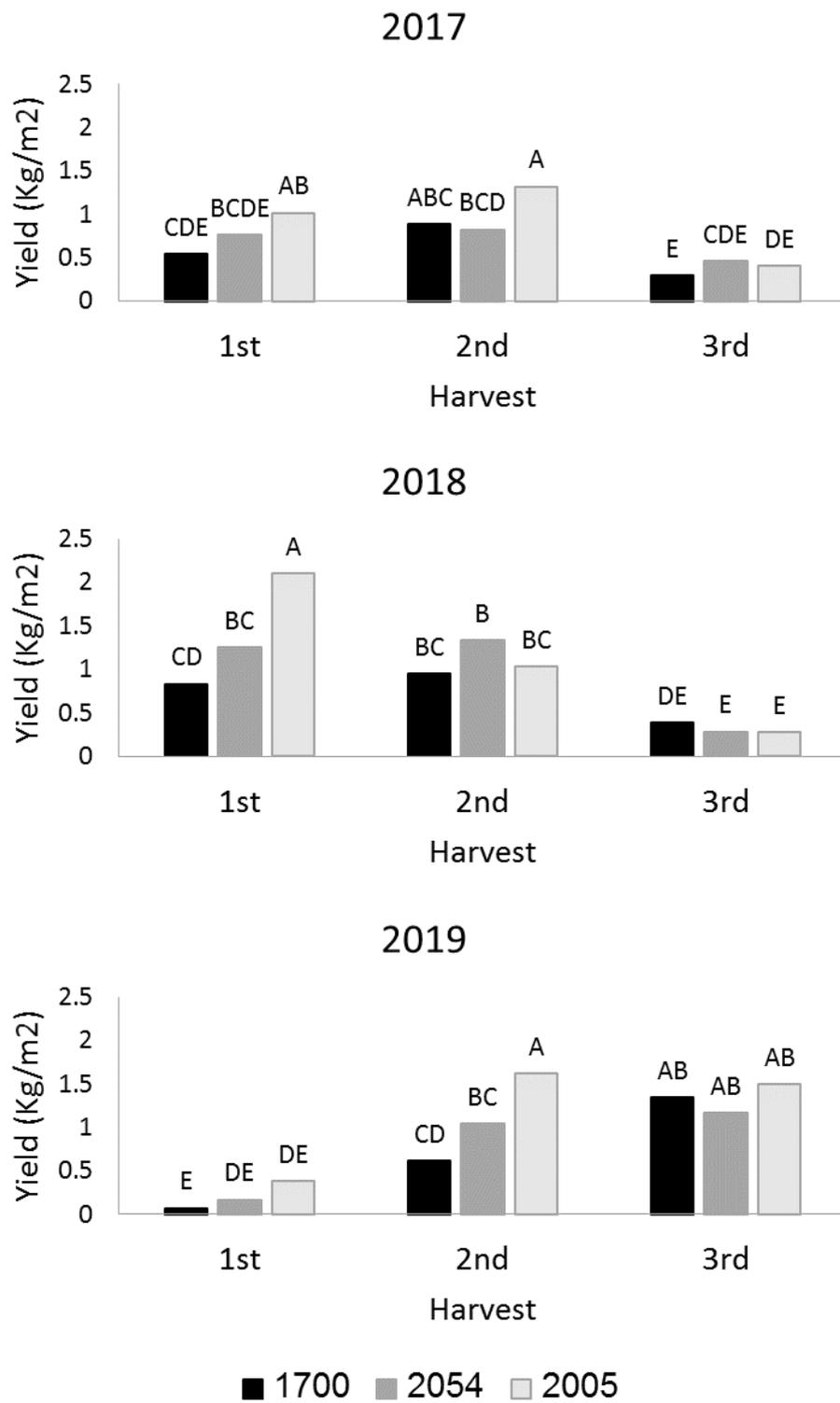
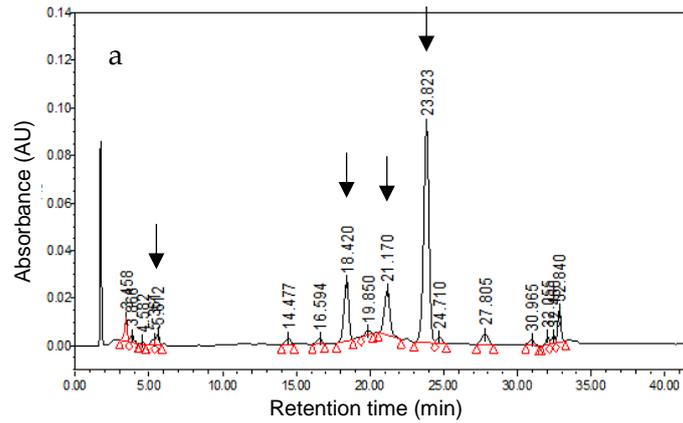
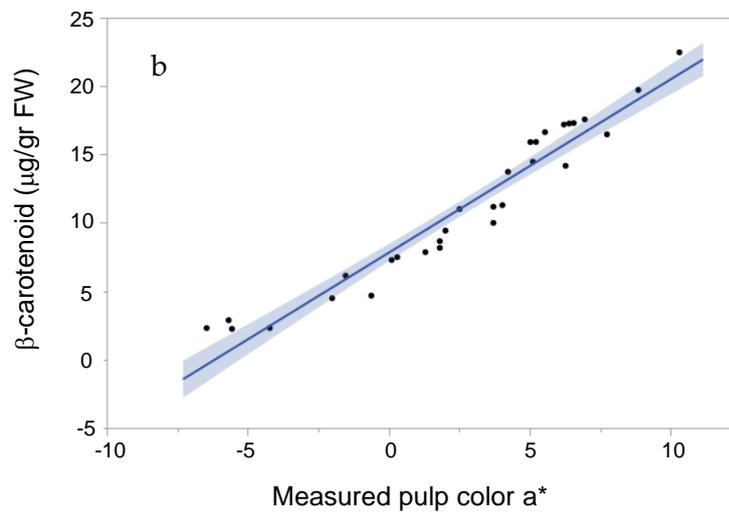


Figure S2: Yield by cultivar and harvest sequence over three years



Carotenoid	Max absorbance at (nm)	Retention time (min)
$\beta$ -carotene	455	23.8
Lutein	447	5.6
Unknown	443	18.4
Unknown	438	21.2



**Figure S3:** Identification and quantification of acorn squash carotenoids. (a) HPLC chromatographic pattern of carotenoids extracted from acorn squash fruit flesh. AU, arbitrary units of absorbance at 450 nm. Arrows mark the peaks that are specified in the table below. (b) Correlation between measured pulp color  $a^*$  and the carotenoids ( $\beta$ -carotenoid,  $\mu\text{g/g FW}$ ) extracted from fruits at various ripening stages,  $n = 30$ ,  $r = 0.95$ ,  $P < 0.001$ . The  $a^*$  color space is linearly correlated to  $\beta$ -carotenoid at  $a^* > -5$ .

**Figure S4:** Hedonic tests of three acorn squash cultivars from two separate harvests (Harvest 1 and Harvest 2) after two months of storage, at 15°C Rh 95% (15DEG) and 20°C Rh 60% (20DEG). Results for sweetness (Sweet), texture, general impression (Impression) and bitterness at the end of storage are presented. (1) and (2) indicate the harvest.

The score of each parameter was 1 to 4:

Sweetness 1- not sweet, 2-slightly sweet, 3- moderately sweet, 4- very sweet.

Texture 1- very fibrous, 2- fibrous, 3- slightly fibrous, 4- very smooth.

General impression 1- not tasty, 2-slightly tasty, 3- moderately tasty, 4- very tasty.

Bitterness 1- very bitter, 2- moderately bitter, 3- slightly bitter, 4- not bitter.

