UF IFAS
UNIVERSITY of FLORIDA

Citrus Research
and
Education Center

Use of Sugar Belle® juice in OJ processing



Yu Wang, IFAS/CREC

Citrus Expo. August 14th, 2019

Flavor drives most juice purchases











- 500 participants: adults and parents of children ages 1 to 17.
- Flavor is the # 1 driver of juice purchase.
- About half of the 500 respondents said "all natural" was the second most important element.

https://www.grocerydive.com/news/grocery--study-flavor-drives-most-juice-purchases/534702/

What is *Flavor*?

UF IFAS UNIVERSITY of FLORIDA
Citrus Research and Education Center

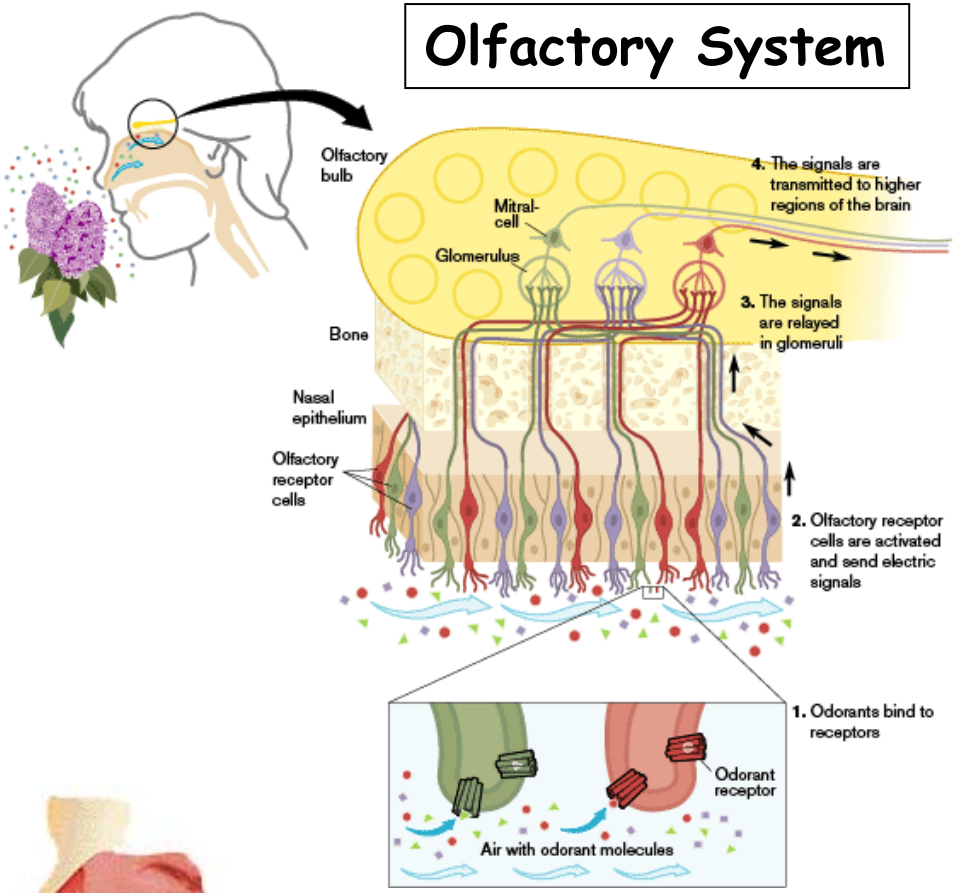
Flavor = Aroma + Taste

Taste *= sweet, sour, salty, bitter, umami*

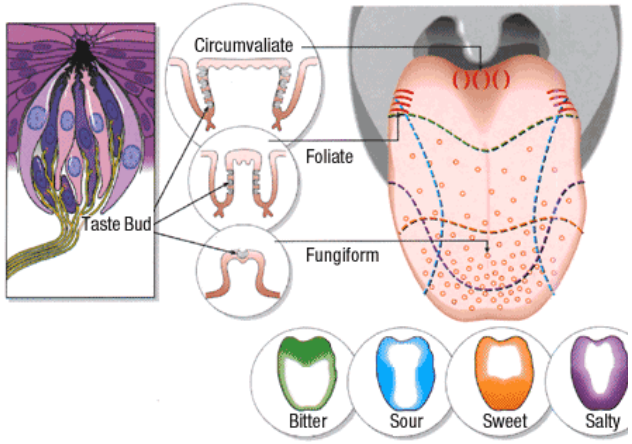
Aroma/Odor *=property detected by the olfactory system (smells)*

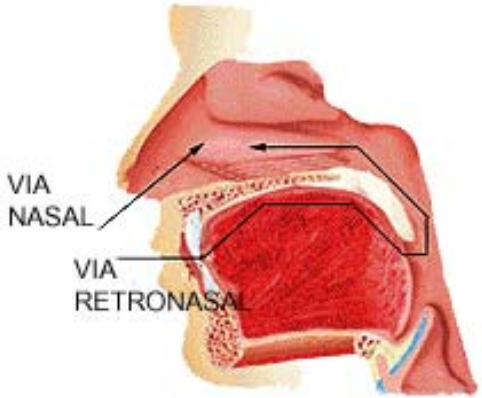
- *Astringency (physical sensation)*

Olfactory System



Taste System





Why Aroma Is Also Important in Citrus

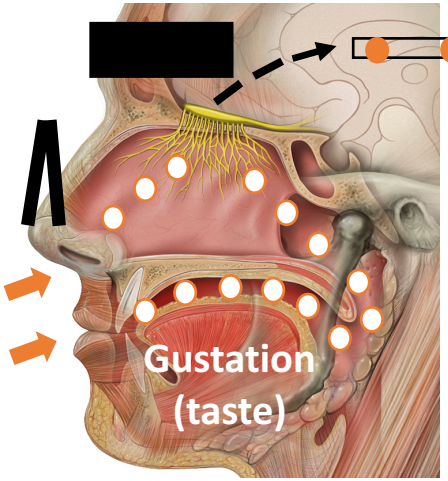
UF IFAS UNIVERSITY of FLORIDA
Citrus Research and Education Center



Citrus Fruit Juice

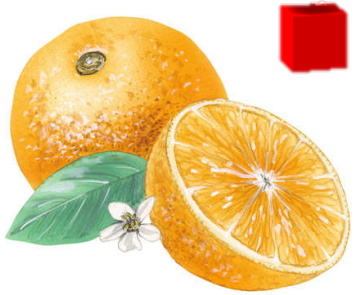
VS







Mandarin



Orange

Aroma

Aroma ⇨ Interaction ⇦ *Taste*

UF IFAS UNIVERSITY of FLORIDA
Citrus Research and Education Center



The majority of adults and children are positively driven by sweetness, overall flavor, orange aroma, freshness.

The current maturity index used by citrus growers, Brix/Acid ratio, was not consistent in predicting consumer liking.

Aroma compounds can enhance sweetness and also attenuate bitterness.

Why Sugar Belle®?

UF IFAS UNIVERSITY of FLORIDA
Citrus Research and Education Center

The most tolerant variety

Taste Good



Complex aroma profile

Original variety for fresh Market

Use of Sugar Belle® juice in OJ

UF IFAS UNIVERSITY of FLORIDA
Citrus Research and Education Center



50/50 VA/SB 90/10 VA/SB

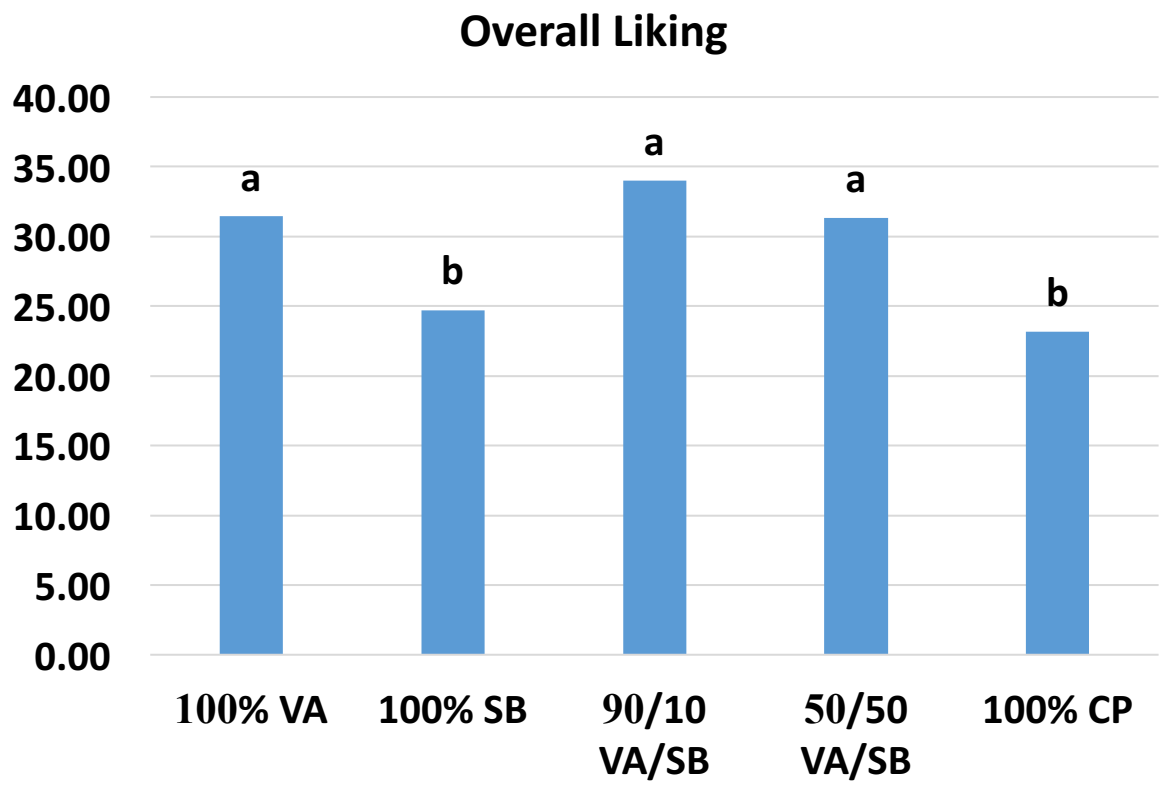
Sample	Brix	Acid	Ratio
100% VA	11.4	1.0	11.4
100% SB	15.4	1.5	10.3
90/10 VA/SB	11.7	1.1	10.6
50/50 VA/SB	13.3	1.2	11.1
100% CP	10.8	0.9	12.0

100% VA: 100% Valquarius; 100% SB: 100% Sugar Belle; 90/10 VA/SB: 90% Valquarius & 10% Sugar Belle; 50/50 VA/SB: 50% Valquarius & 50% Sugar Belle; 100% CP: 100% commercial product

Use of Sugar Belle® juice in OJ

UF IFAS UNIVERSITY of FLORIDA
Citrus Research and Education Center

Overall Liking

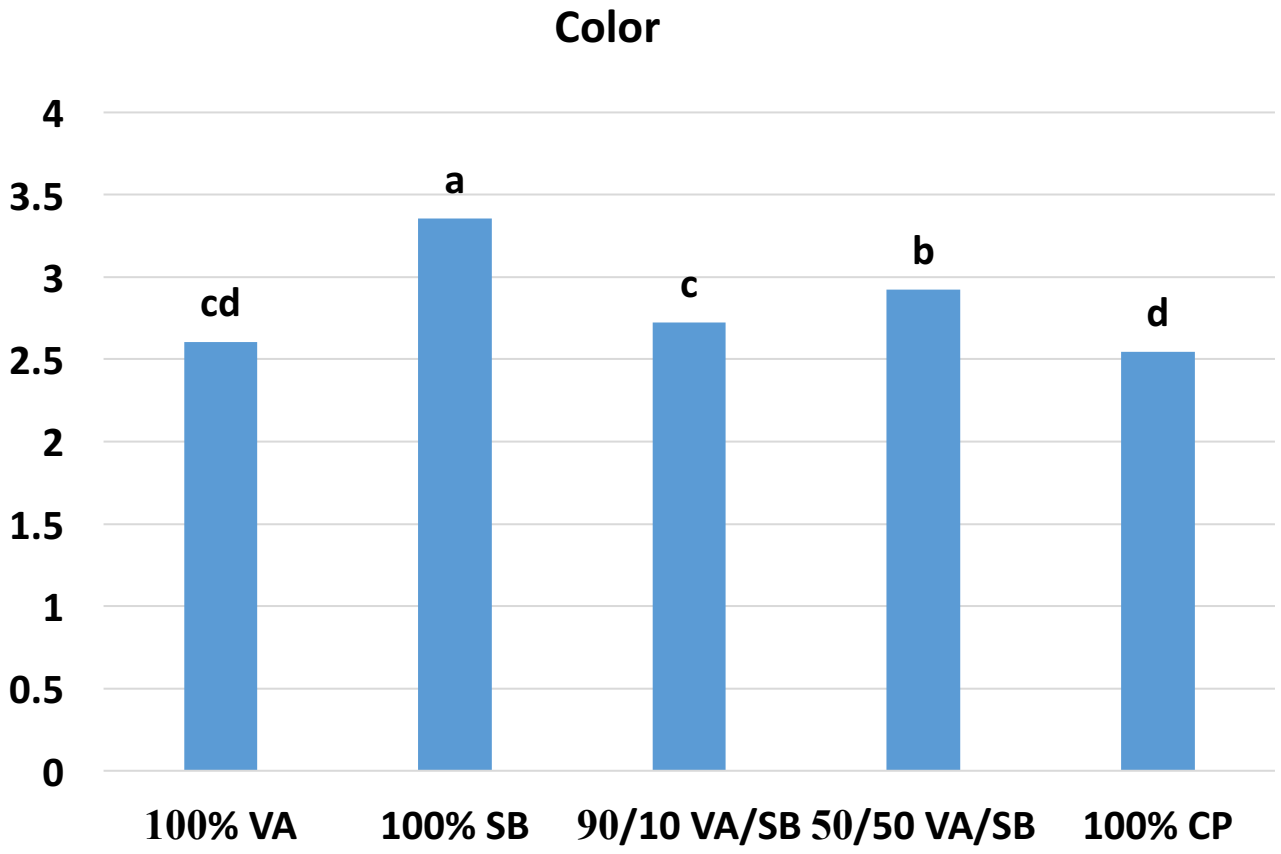


100% VA: 100% Valquarius; 100% SB: 100% Sugar Belle; 90/10 VA/SB: 90% Valquarius & 10% Sugar Belle; 50/50 VA/SB: 50% Valquarius & 50% Sugar Belle; 100% CP: 100% commercial product

Use of Sugar Belle® juice in OJ

UF IFAS UNIVERSITY of FLORIDA
Citrus Research and Education Center

Color

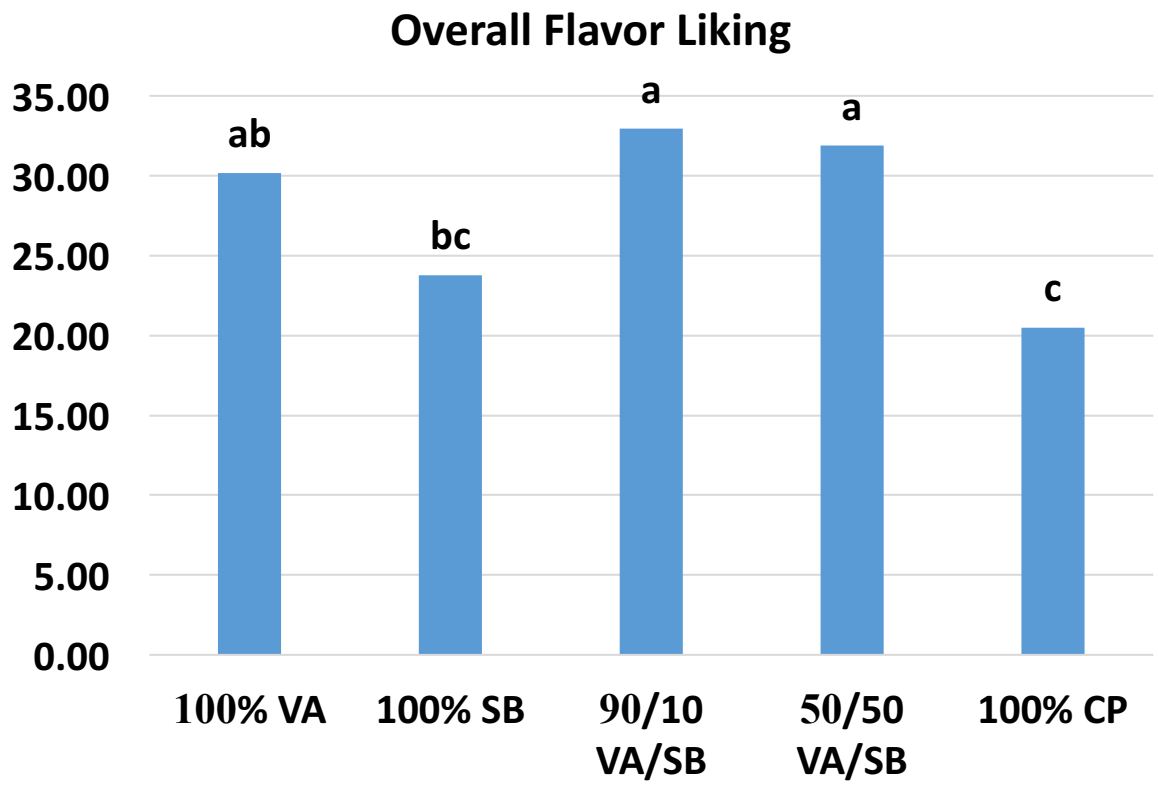


100% VA: 100% Valquarius; 100% SB: 100% Sugar Belle; 90/10 VA/SB: 90% Valquarius & 10% Sugar Belle; 50/50 VA/SB: 50% Valquarius & 50% Sugar Belle; 100% CP: 100% commercial product

Use of Sugar Belle® juice in OJ

UF IFAS UNIVERSITY of FLORIDA
Citrus Research and Education Center

Overall Flavor Liking

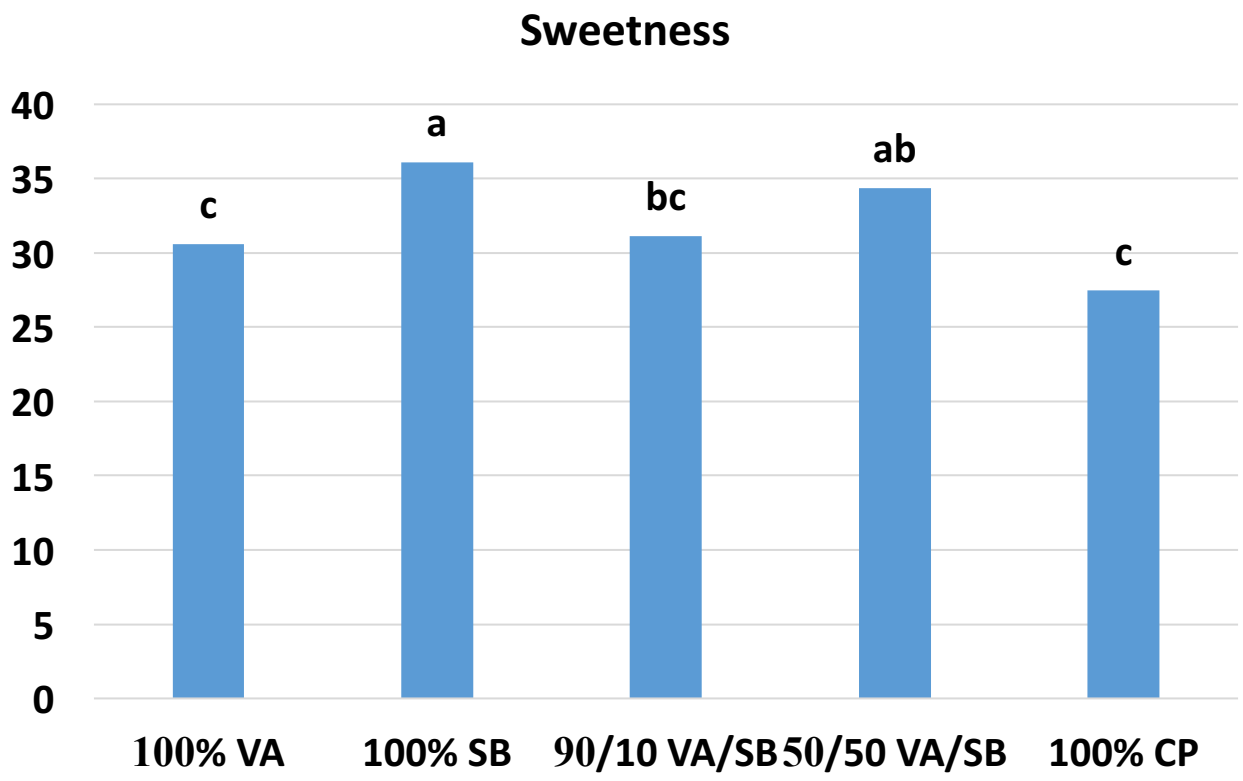


100% VA: 100% Valquarius; 100% SB: 100% Sugar Belle; 90/10 VA/SB: 90% Valquarius & 10% Sugar Belle; 50/50 VA/SB: 50% Valquarius & 50% Sugar Belle; 100% CP: 100% commercial product

Use of Sugar Belle® juice in OJ

UF IFAS UNIVERSITY of FLORIDA
Citrus Research and Education Center

Sweetness

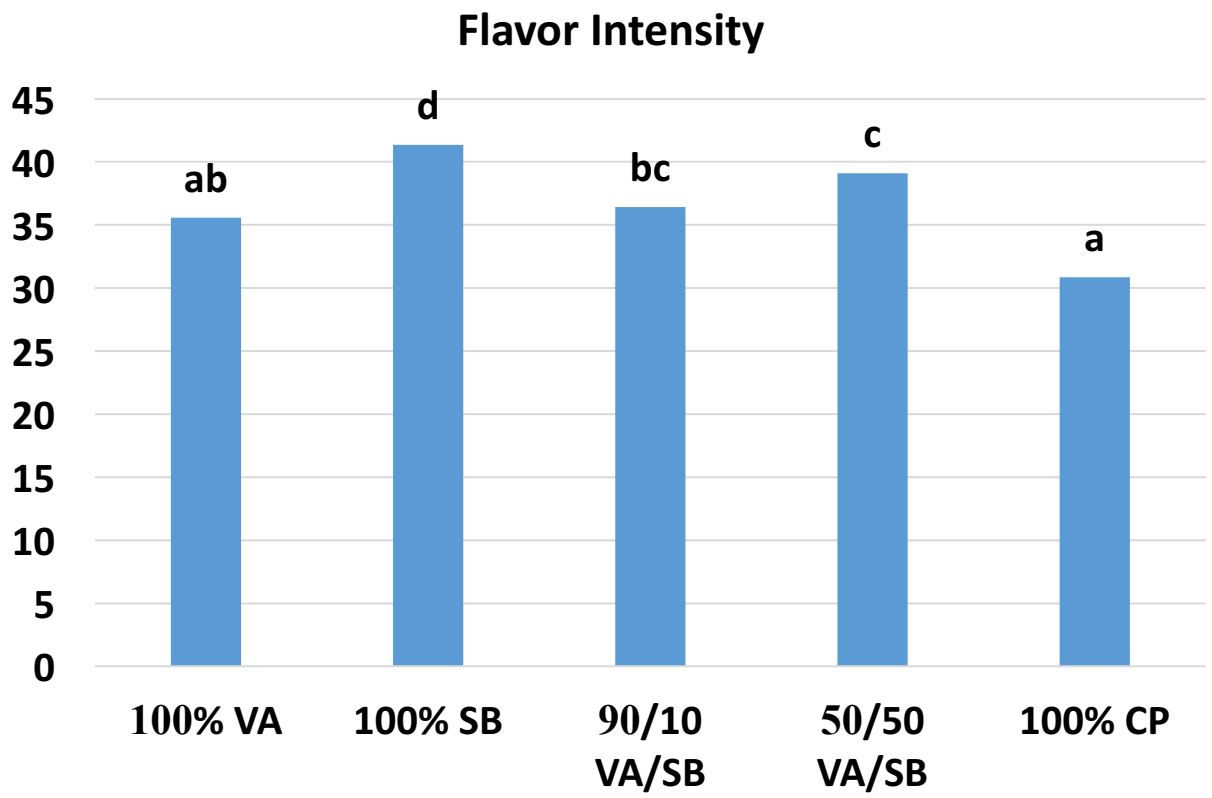


100% VA: 100% Valquarius; 100% SB: 100% Sugar Belle; 90/10 VA/SB: 90% Valquarius & 10% Sugar Belle; 50/50 VA/SB: 50% Valquarius & 50% Sugar Belle; 100% CP: 100% commercial product

Use of Sugar Belle® juice in OJ

UF IFAS UNIVERSITY of FLORIDA
Citrus Research and Education Center

Flavor Intensity

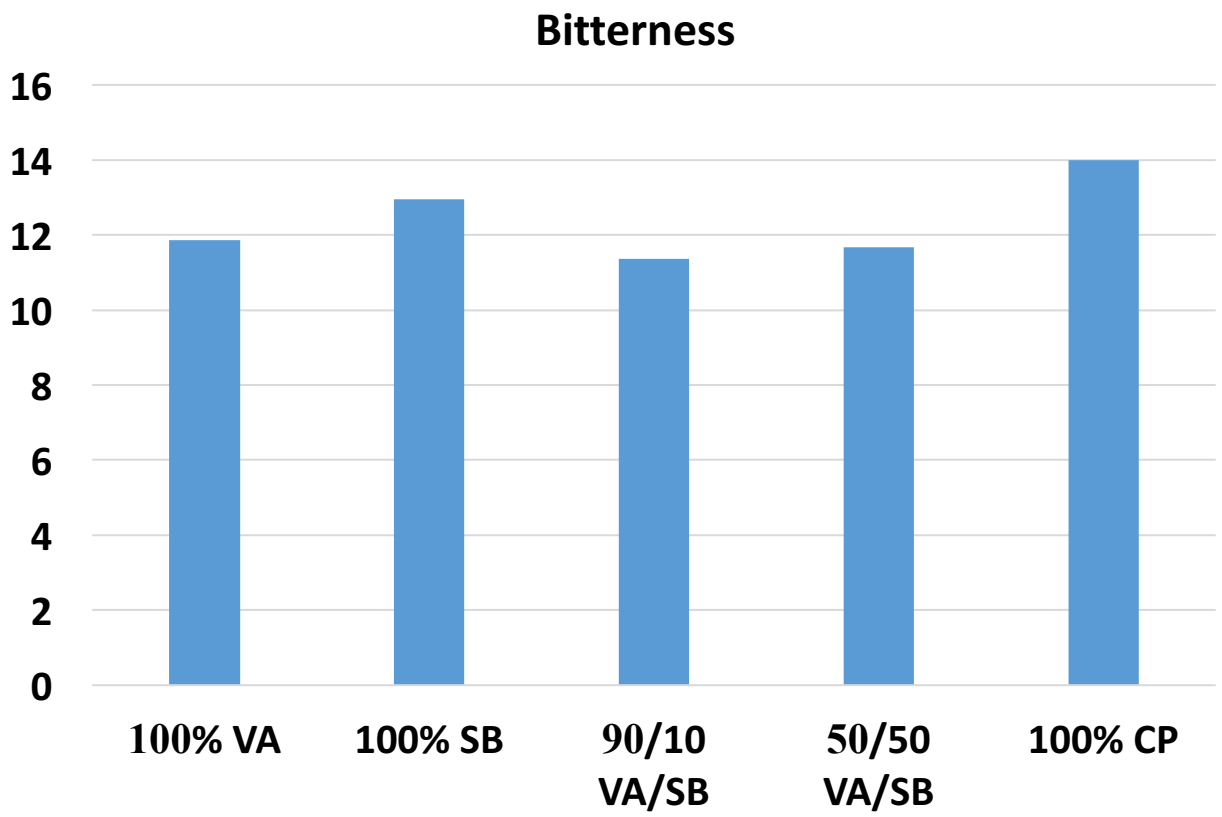


100% VA: 100% Valquarius; 100% SB: 100% Sugar Belle; 90/10 VA/SB: 90% Valquarius & 10% Sugar Belle; 50/50 VA/SB: 50% Valquarius & 50% Sugar Belle; 100% CP: 100% commercial product

Use of Sugar Belle® juice in OJ

UF IFAS UNIVERSITY of FLORIDA
Citrus Research and Education Center

Bitterness

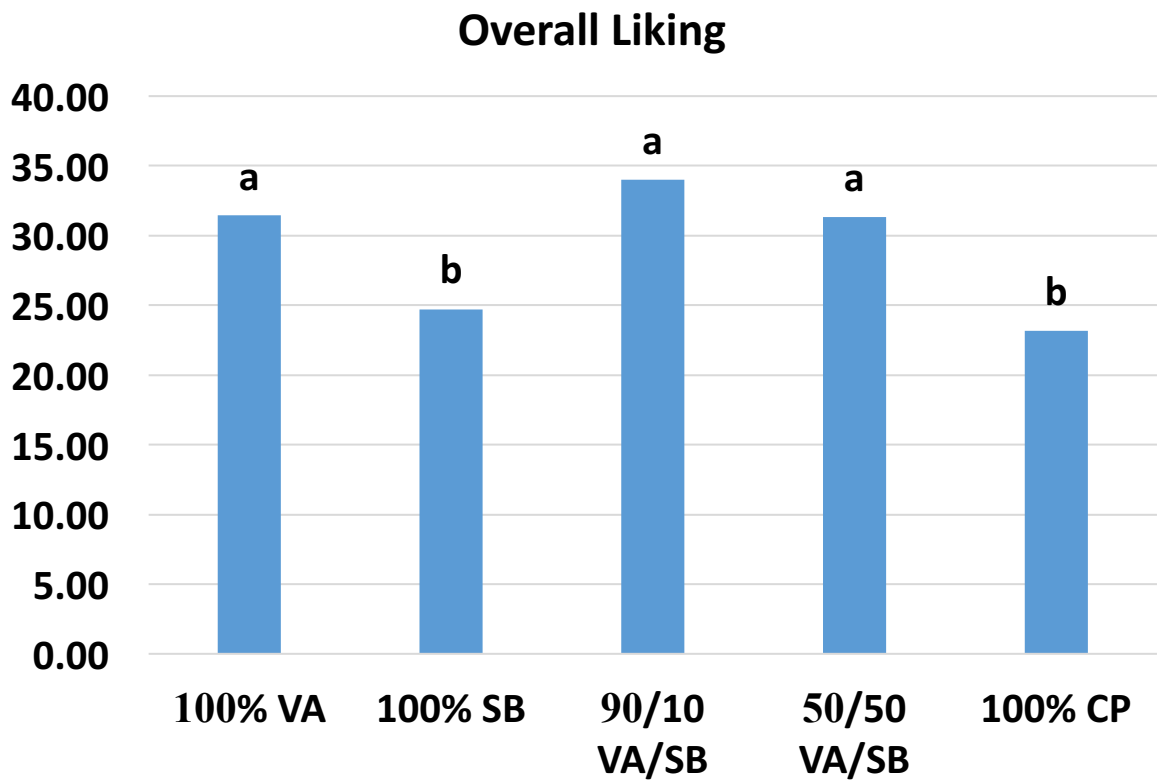


100% VA: 100% Valquarius; 100% SB: 100% Sugar Belle; 90/10 VA/SB: 90% Valquarius & 10% Sugar Belle; 50/50 VA/SB: 50% Valquarius & 50% Sugar Belle; 100% CP: 100% commercial product

Use of Sugar Belle® juice in OJ

UF IFAS UNIVERSITY of FLORIDA
Citrus Research and Education Center

Price Willingness to Pay

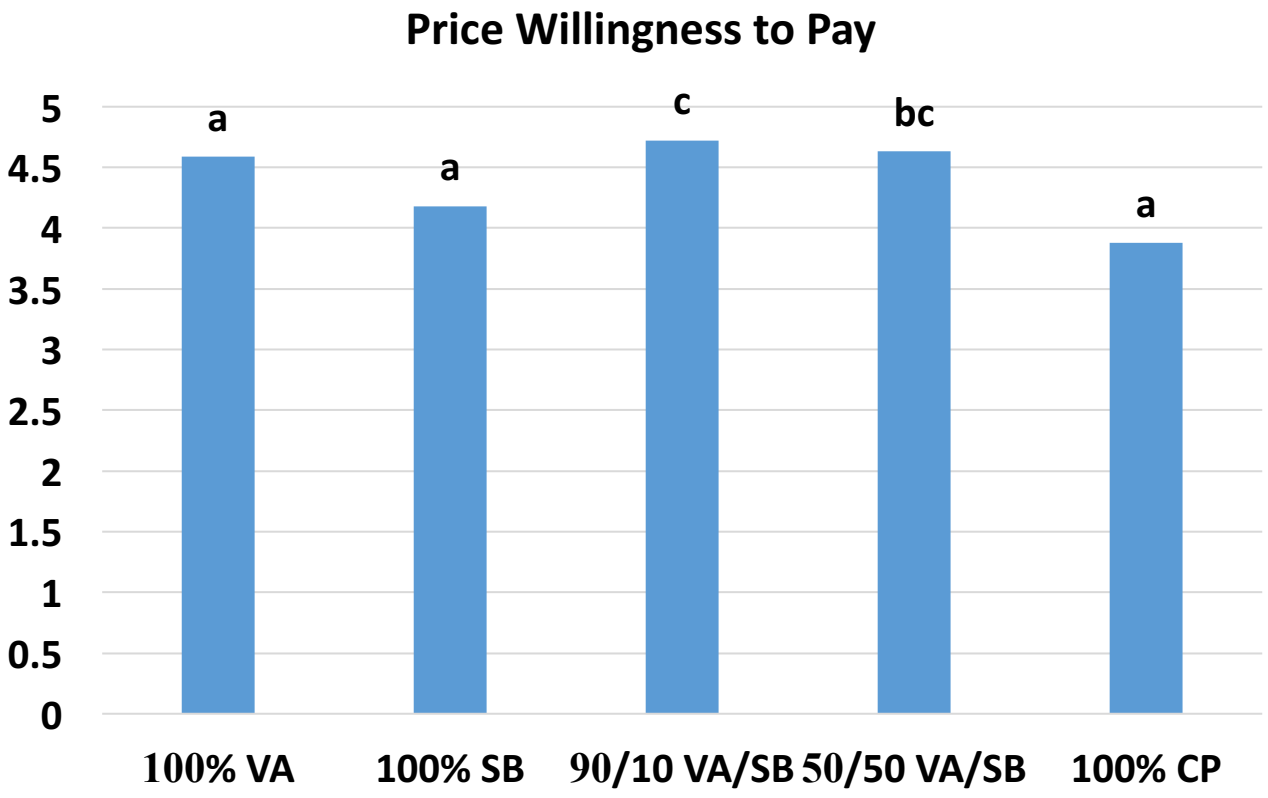


100% VA: 100% Valquarius; 100% SB: 100% Sugar Belle; 90/10 VA/SB: 90% Valquarius & 10% Sugar Belle; 50/50 VA/SB: 50% Valquarius & 50% Sugar Belle; 100% CP: 100% commercial product

Use of Sugar Belle® juice in OJ

UF IFAS UNIVERSITY of FLORIDA
Citrus Research and Education Center

Price Willingness to Pay



100% VA: 100% Valquarius; 100% SB: 100% Sugar Belle; 90/10 VA/SB: 90% Valquarius & 10% Sugar Belle; 50/50 VA/SB: 50% Valquarius & 50% Sugar Belle; 100% CP: 100% commercial product

Take Home Messages

UF IFAS UNIVERSITY of FLORIDA
Citrus Research and Education Center

- Flavor is the # 1 driver of juice purchase.
- Flavor= Aroma + Taste
- Aroma is very important for orange juice.
- Sugar Belle blended was shown a better quality than the commercial product.