

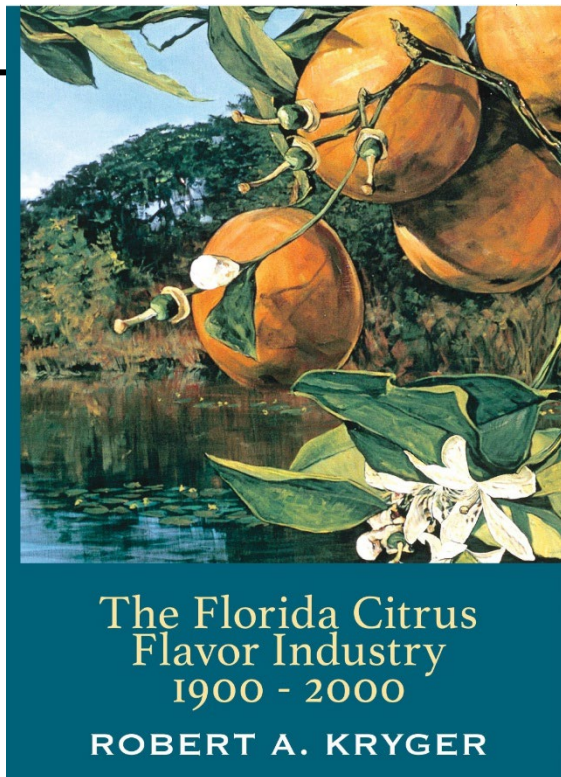


The Birth of The Citrus Flavor Industry in Central Florida

Robert A. Kryger



SINCE 2024

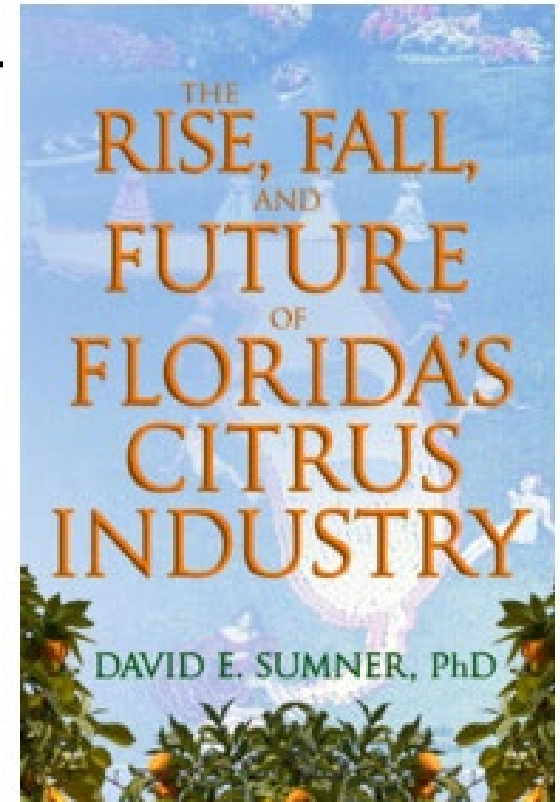


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**Florida Citrus
Special Issue**





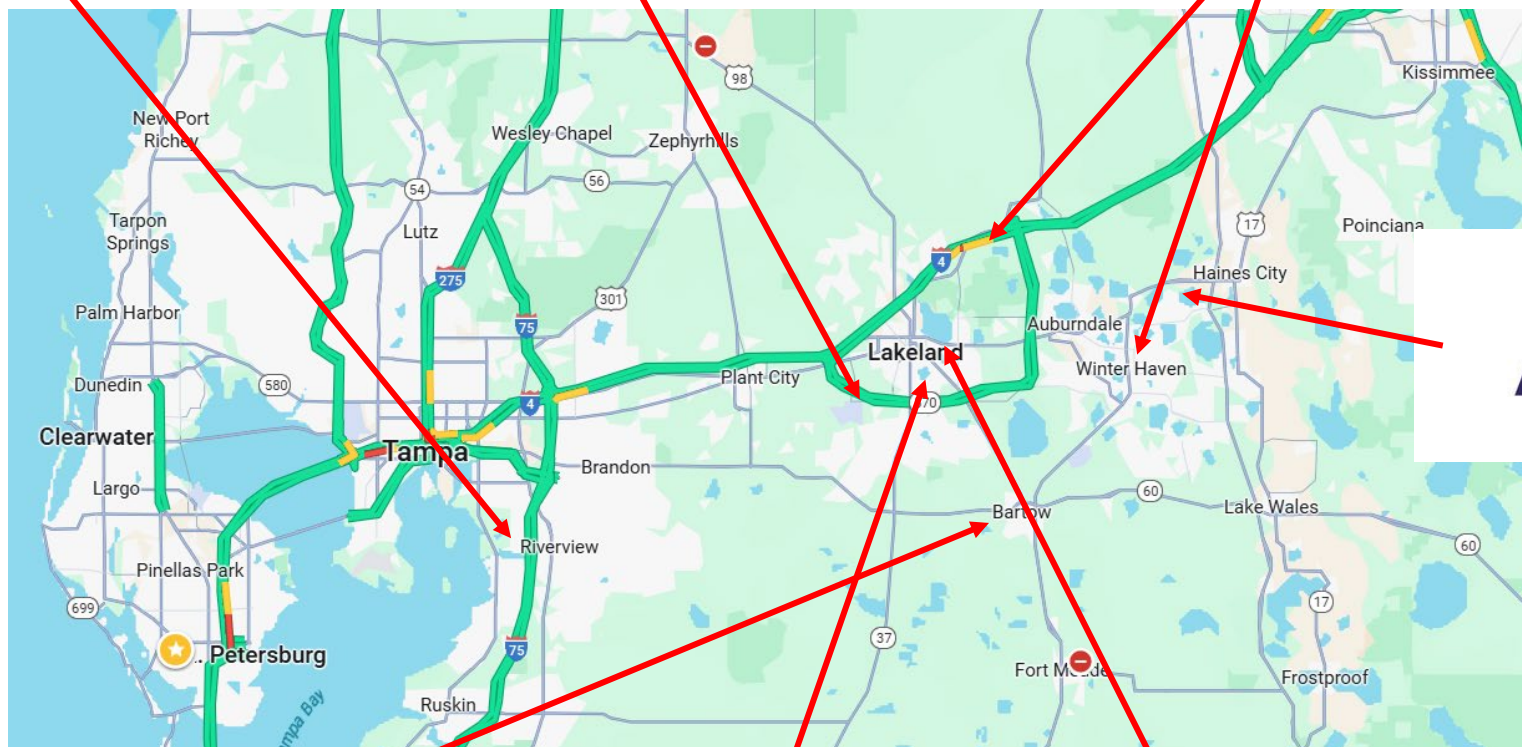
FLORIDAPOLY

CENTRAL FLORIDA



Cvista

dsm-firmenich 



 TAKASAGO

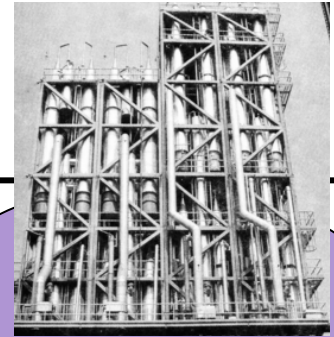


Givaudan

1960s



Florida Chemical
Company ca. 1942
Bert Schulz d. 2009



TASTE Evaporator
& Essence Capture



Redd Laboratories
1961



**Minute
Maid®**

Coca Cola
1960



COCA COLA SPECIAL PRODUCTS

- Carl Huffman (d. 1992)
- Wes Bucek (d. 2009)
- Albert Kruger (d. 2005)

- HVE Essence
- Folding Oils
- FTNF Flavors
- Fractions/Isolates



- Essence
- Freeze Concentration
- ???

Florida Chemical

Minute Maid

Coca Cola/Minute Maid

Special Products

1955

1965

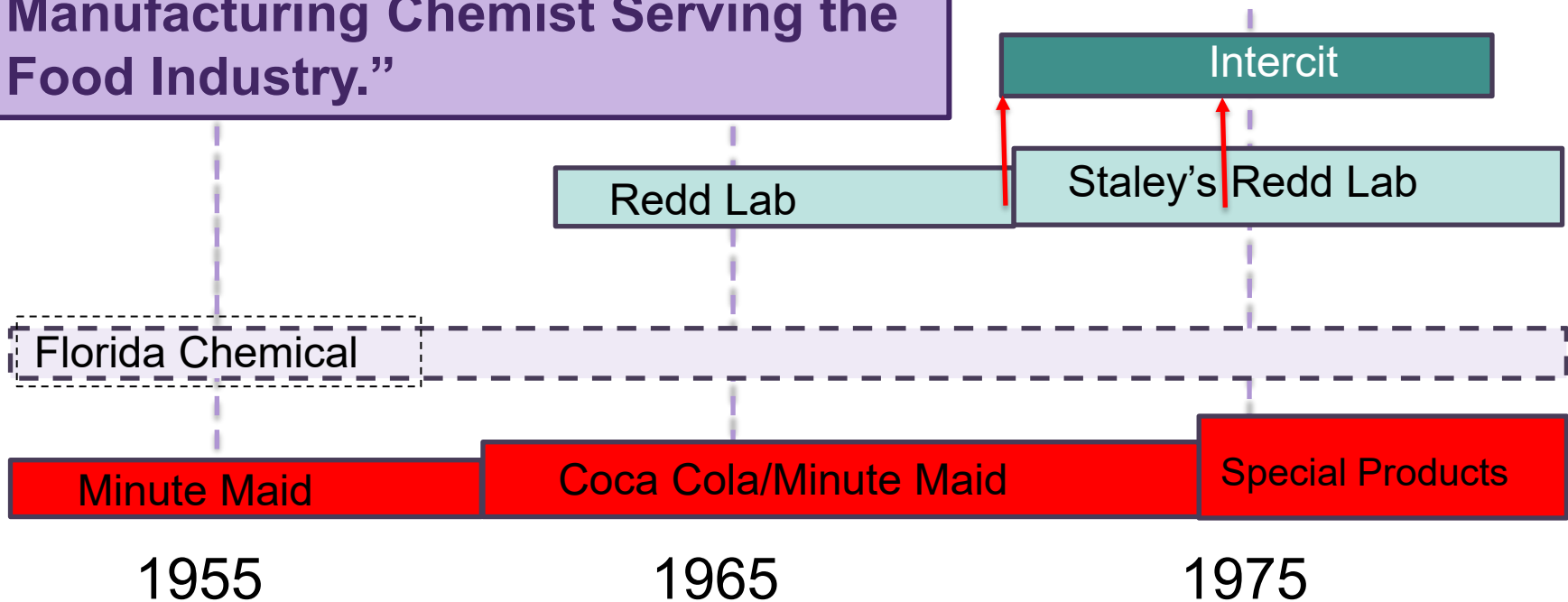
1975

REDD LABORATORIES

- James Redd (d. 1999)
- Charles Walker (d. 1998)



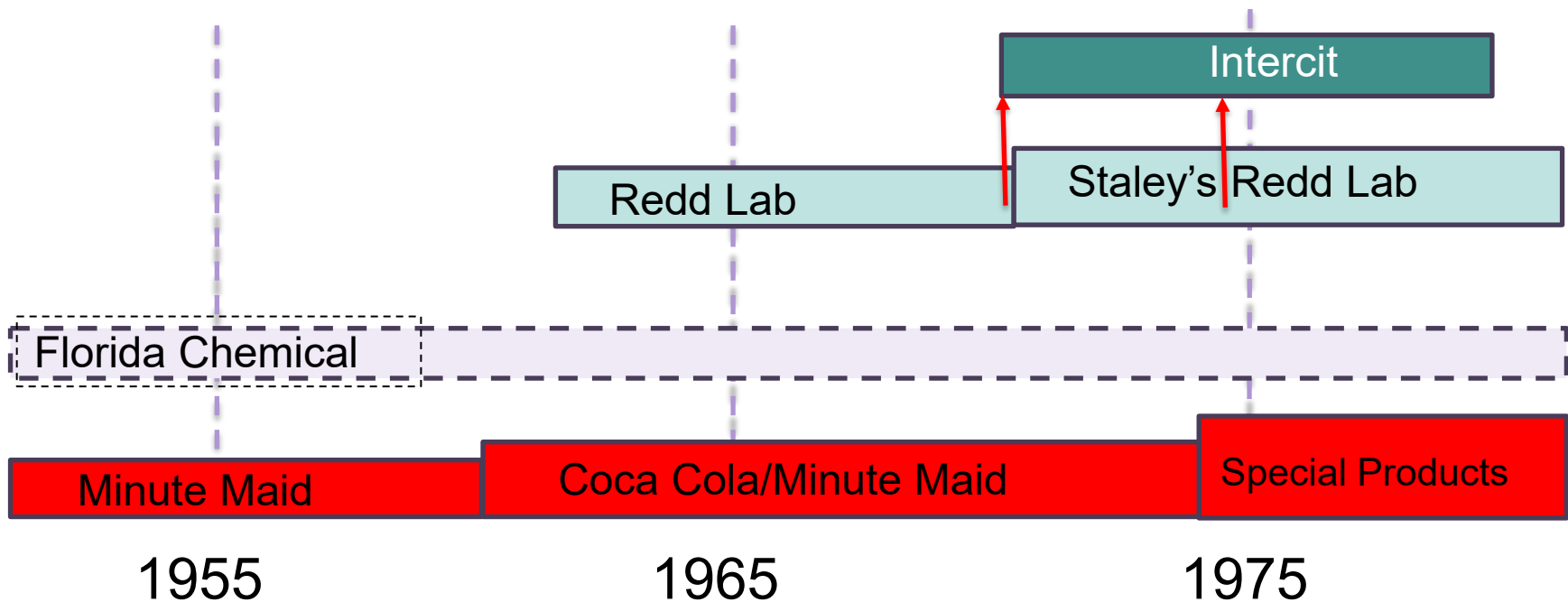
“Consulting, Analytical and Manufacturing Chemist Serving the Food Industry.”





REDD LABORATORIES

- 1970 Staley's Purchases Redd Labs
- 1973 PFW Acquired by Hercules
- 1976 Hercules Acquires Redd Labs





1974 PRODUCT LIST

- Aromas
 - OR, GR, TA, LE, LI
 - Aroma Concentrate (75% alc)
- Essence Oil
 - OR, GR, TA, LE, LI
 - 3x, 7x, 7x “enriched”
- CPO
 - OR, GR, TA
 - 5x, 7x, 5x & 7x “enriched”
- FTNF Flavors (oil, ethanol-based)
- Terpenes

TDS NO. 5001
040275

TECHNICAL DATA SHEET

Staley

PRODUCT NO. 5001 - NATURAL ORANGE FLAVOR (OIL)

PRODUCT DESCRIPTION. Natural Orange Flavor No. 5001 is a special blend of oil soluble flavor fractions designed to provide a "fresh orange juice" flavor system. All these flavor components are 100% natural and are carefully fractionated to concentrate flavor strength. Redd Laboratories' exclusive folding process retains the fresh topnotes normally lost with conventional methods. Careful blending and standardization of these components guarantee a uniform product regardless of type of fruit, maturity or processing variations. Fresh flavor character and concentration are the major attributes that make 5001 our premium natural orange oil flavor.

FLAVOR PROFILE. Natural Orange Flavor 5001 contains delicate flavor components from both orange cold pressed and essence oils, resulting in a truly balanced fresh orange flavor system. The product has been concentrated to a five-fold strength to assure high flavor levels without any undesirable "terpene bite" or aftertaste.

SUGGESTED USAGE.

	% By Weight	Ml. Per Gal.	Fl. Ozs. Per 100 Gals.
5001 Natural Orange Flavor	.01	.4	1.33

Natural Orange Flavor No. 5001 should be added to single strength juice or juice-drink beverages at the above level and mixed in thoroughly. For better dispersion and flavor uniformity, emulsion systems are recommended.

TYPICAL ANALYSIS.

Aldehydes	3.5%
Specific Gravity	.85
Flavor Score (1-9 Points)	8
Color	Light Amber

PACKAGING. Natural Orange Flavor No. 5001 is packaged under nitrogen in epoxy-lined metal containers.

5-Gallon Pail	35 Lbs. Net Wt.
52-Gallon Drum	390 Lbs. Net Wt.

STORAGE. Room temperature (75°F) is sufficient for shipping and short term (two-week) storage. Prolonged storage should be at 40°F. Once opened, containers should be used as soon as possible.

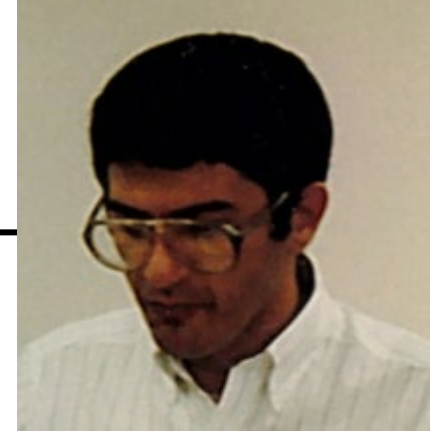


FLORIDA POLY

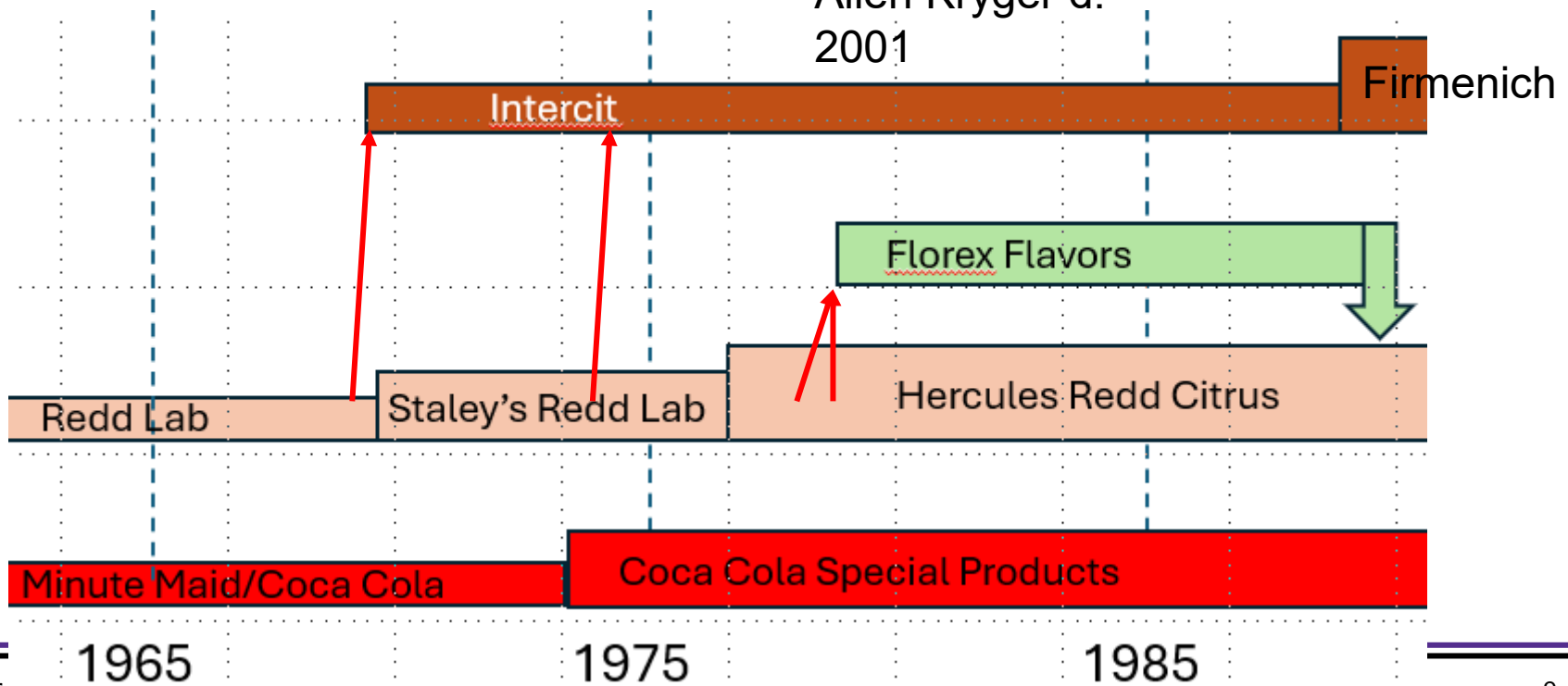
1980s



Allen Kryger d.
2001



Hadi Lashkajani



THREE APPROACHES

Redd Laboratories

- Industry Leader
- Hercules:
Combined Sales
Team
- Integrate PFW

Intercit

- One Technical
Expert
- Lots of outside
interests

Florex Flavors

- Scrappy Upstart
- Had to be
innovative:
 - Made money
on terpenes
- Apple Aroma



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NATURAL CITRUS ESSENCES

J.D. JOHNSON and J.D. VORA

THE OJ WARS



United States Patent [19]

Swaine, Jr. et al.

- [54] **COMMERCIALY PROCESSED ORANGE JUICE PRODUCTS HAVING A MORE HAND-SQUEEZED CHARACTER**
- [75] **Inventors:** Robert L. Swaine, Jr., Springdale; Thomas F. Rich; Rudolf G. K. Strobel, both of Cincinnati; Raju V. Thundathil; Chee-Hway Tsai, both of West Chester, all of Ohio
- [73] **Assignee:** The Procter & Gamble Company, Cincinnati, Ohio

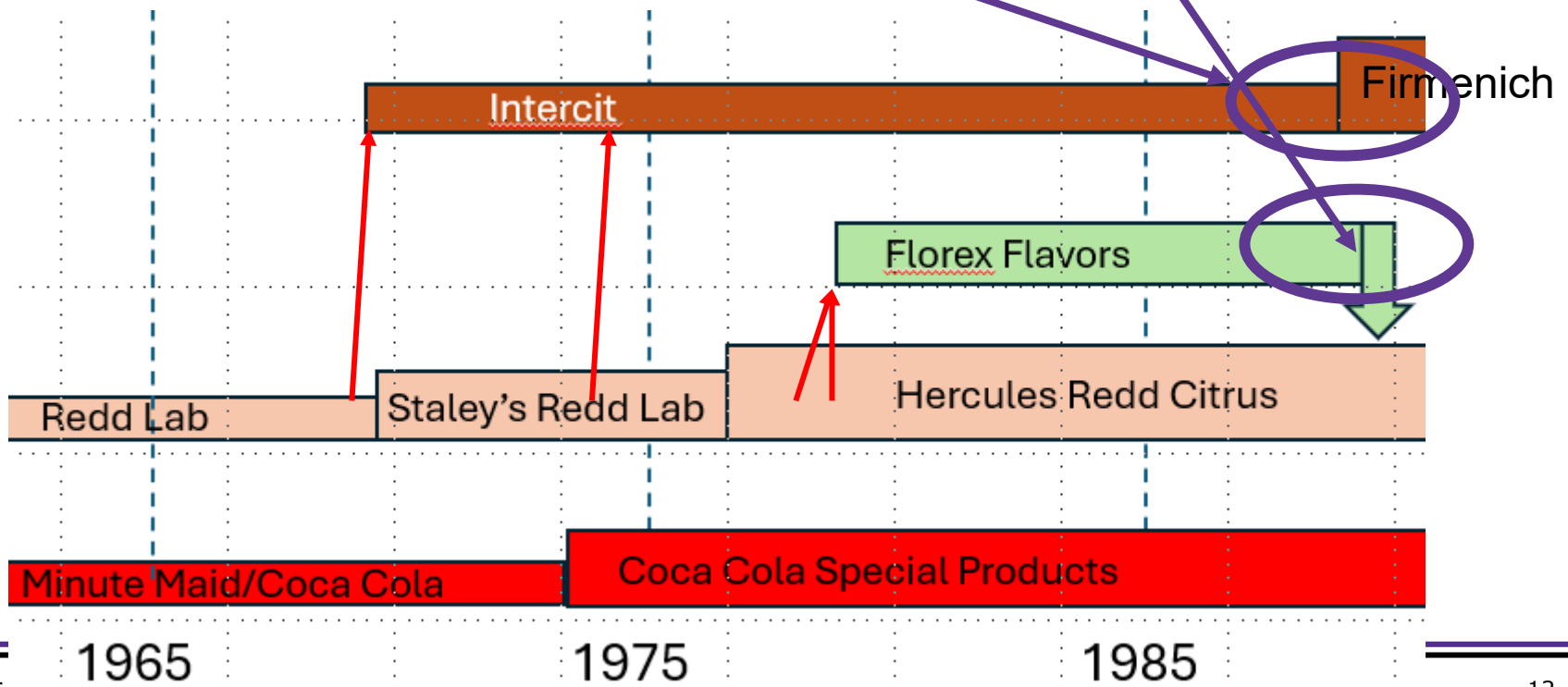


LATE 1980s

1988 - Dr. Redd Sells

1989 - Florex Sells

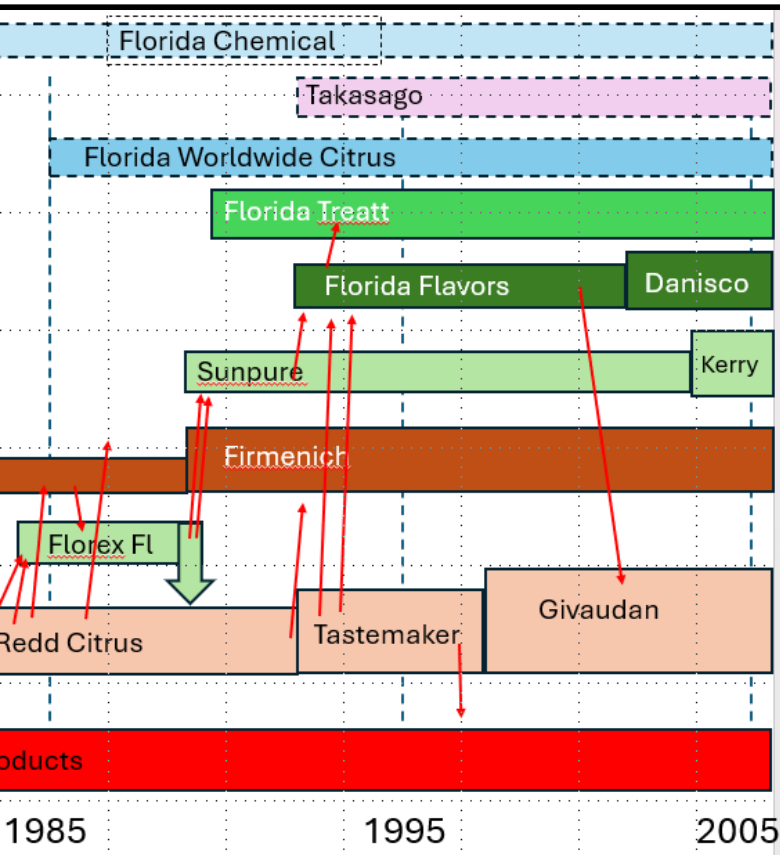
Florida
Treatt





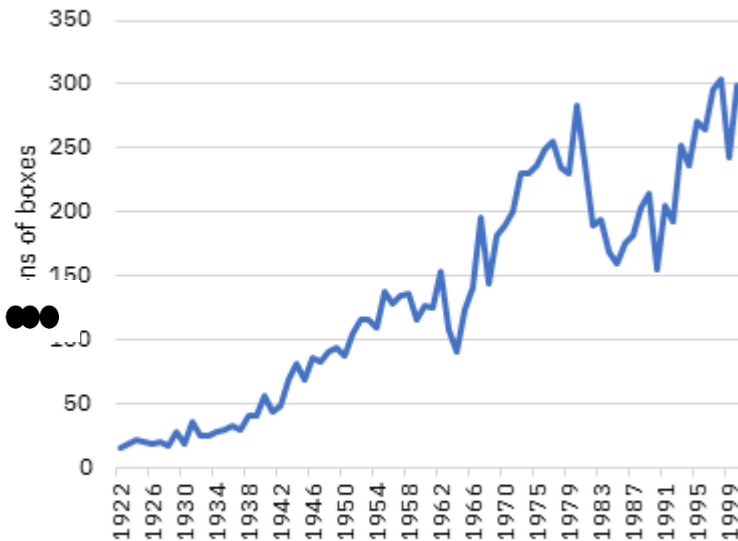
FLORIDAPOLY

1990s



dsm-firmenich ●●●

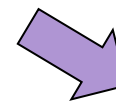
Florida Citrus Production



Source: USDA, authors' calculations

Cvista

iff



WANT TO KNOW MORE...?

www.floridaflavorhistory.org

Acknowledgements:

port and contributions of many people. Of these, a handful contributed particularly generously of their time, expertise and experience including: Tim Anglea, Ed Baranski, Beverly Bateman, Jeff Dodson, Gil Escobar, Luis Haro, Rex Harper, Don Hendrix, Paul Schulz, JD Vora, and Brett Welch. Other industry professionals who contributed important facts, memories, documents or interviews include: Randy Aulick, Elizabeth Baldwin, Wesley Beck, Eric Bennett, Niv BenYehuda, Hugo Bovill, Bob Braddock, Robert Brausch, Robin Bryant, Kristen Carlson, David Cline, Cathy Conway, Sean Frielich, Dan Gunter, Joe Johnson, Dennis Kujawski, Chris Li, Peary Marro, Susan Martin, David McKeithan, Carlos Odio, Sue Percival, Anne Plotto, Dave Rosen, Jerry Sachs, Colin Scott, Charles Thomas, Jan Van Iperen, David Walker, and Mark Walsh. I am very grateful to them also. It is my sincere hope that the



The Florida Citrus
Flavor Industry
1900 - 2000

ROBERT A. KRYGER

CITRUS HALL OF FAME



Dr. James Walter Kesterson
(1915-2006)
Inducted 1996



Dr. James B. Redd ??

- Co-inventor TASTE Evaporator
- Creator of independent essence marketplace
- Developed the “addback” flavor/pushed out cutback juice
- Father of the Florida citrus flavor industry



WHO “INVENTED” EB IN OJ?

1987

United States Patent [19] Swaine, Jr. et al.

[54] **COMMERCIALY PROCESSED ORANGE JUICE PRODUCTS HAVING A MORE HAND-SQUEEZED CHARACTER**

[75] **Inventors:** Robert L. Swaine, Jr., Springdale; Thomas F. Rich; Rudolf G. K. Strobel, both of Cincinnati; Raju V. Thundathil; Chee-Hway Tsai, both of West Chester, all of Ohio

[73] **Assignee:** The Procter & Gamble Company, Cincinnati, Ohio

- 1925 Hall & Wilson identified EB in Valencia OJ (CFGE)
- 1940s “volatile esters”
- Synthetic EB used in Flavor industry
- Orange Essence Oil starts being collected in 1960s



FIRST DISTILLATION OF EB

Allen Kryger?

START EACH DAY ON THE FIRST UNUSED PAGE.

SUBJECT Frac Dist of OEO
DATE 6/17/76 PROJECT NO. _____

Composed to obtain fract from OEO
high in Esters butyrate

290 ml OEO distilled in small
Evap at 27 1/2" - distiller off
for 1 fract 40 ml collect (1). The
Rest was discarded.

- A-Phase/O-Phase Process in routine use by early 80's
- 1979/80 - Joe Johnson develops Aroma Plus with these EB fractions.