California Avocado Varieties: *Past, Present and Future (?)*

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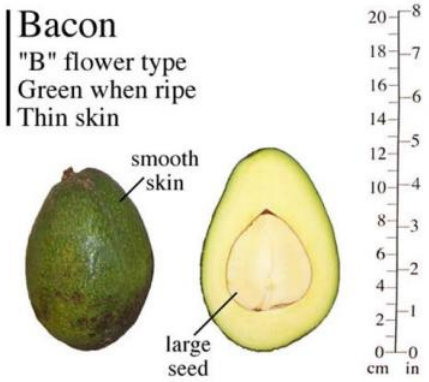
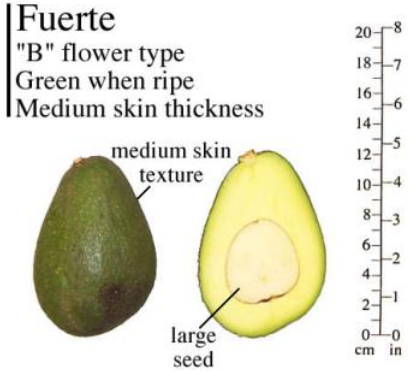
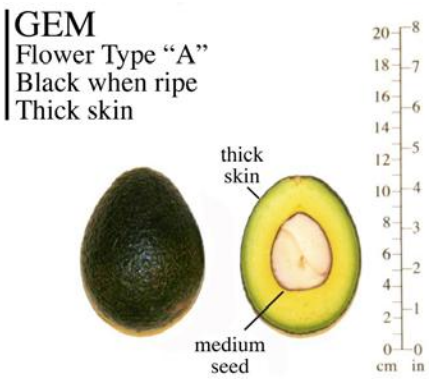
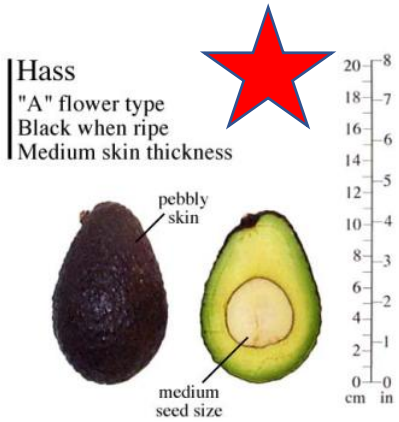
WAC
IX WORLD AVOCADO CONGRESS
- COLOMBIA -

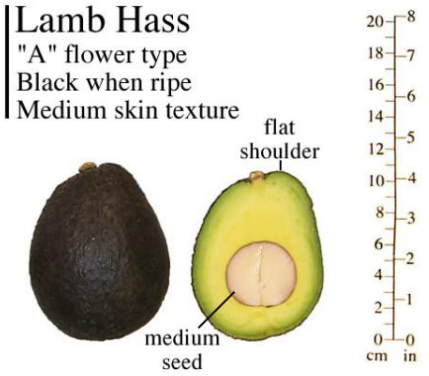


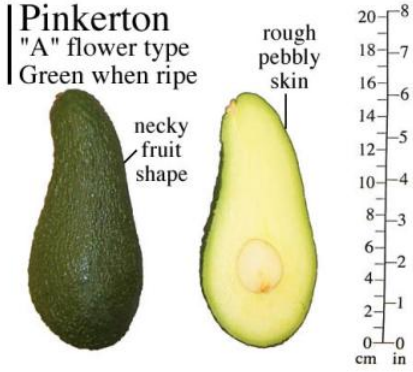


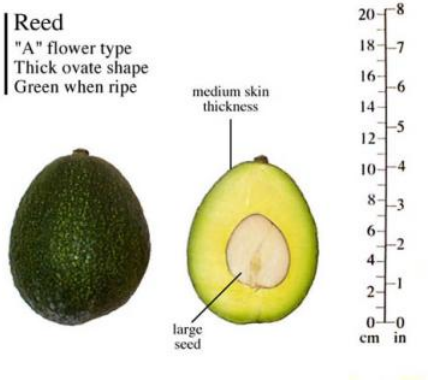


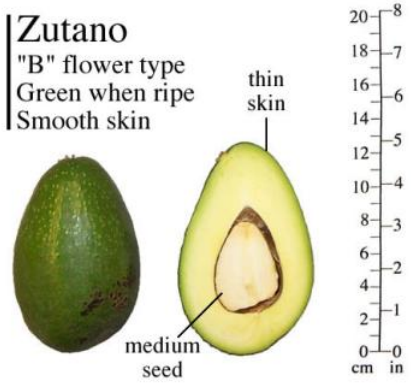


California Avocado Varieties



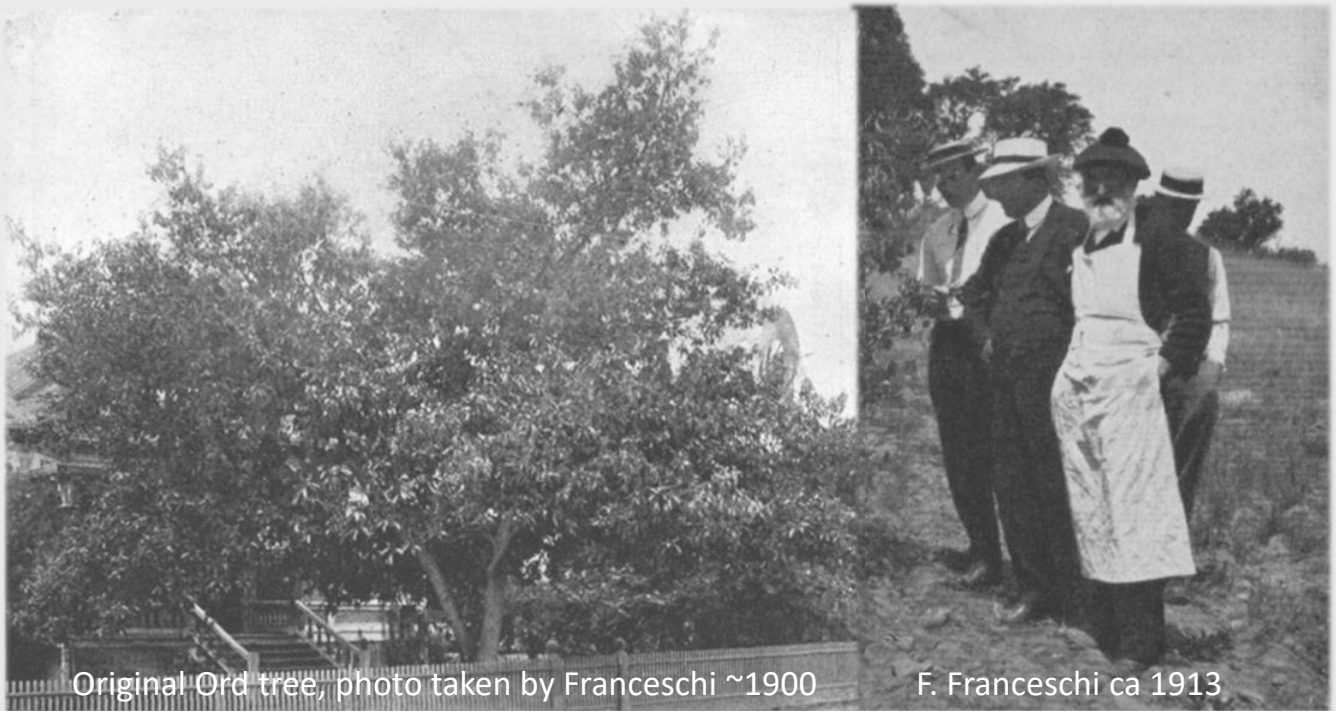






From: ucavo.ucr.edu

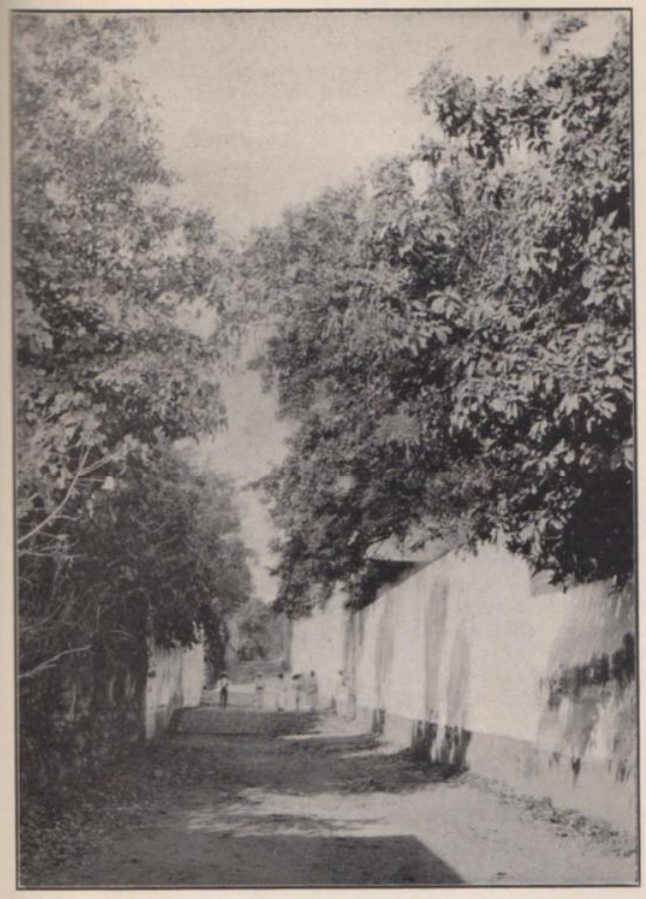
1856 Dr. Thomas J White, San Gabriel, material from Nicaragua
1870-1871 Judge R. B. Ord, Santa Barbara, 3 seedling trees brought from Mexico
1892 Juan Murrieta begins contact with Señor Fuentes in Atlixco, Mexico to import seed
1891-1913 Francesco Franceschi, active in California promoting numerous exotic fruiting plants and ornamentals



Original Ord tree, photo taken by Franceschi ~1900

F. Franceschi ca 1913

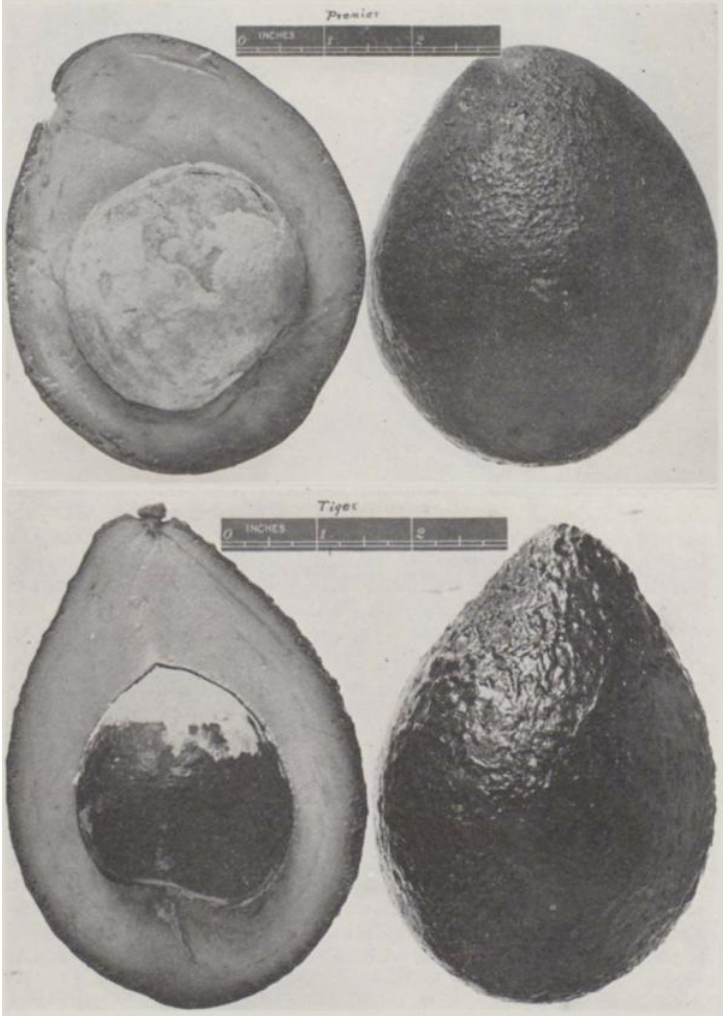
J. Murrieta ~1920s



A STREET THROUGH THE AVOCADO GROVES

Along this picturesque roadway are several of the walled orchards from which were obtained the fine Atlixcan avocados now cultivated in California and Florida.

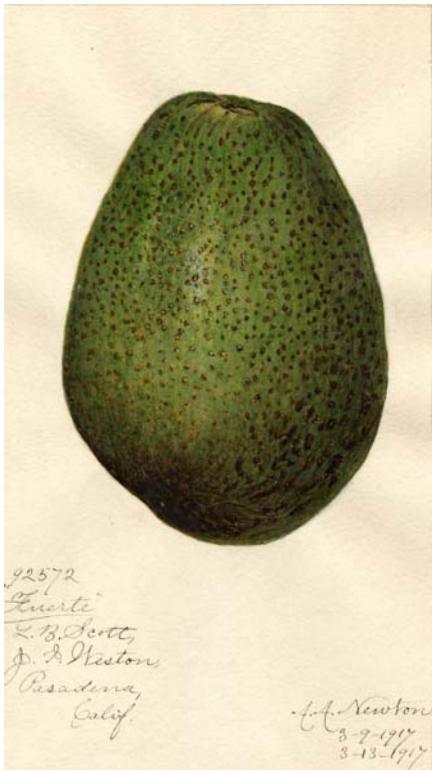
- Late 1800s import of seed from Mexico & Central America (among others)
- 1911 W. Popenoe & C. Schmidt send material back from Mexico
- 1914 E.E. Knight brings material back from Guatemala
- 1915 First CA Avo Society meeting – 86 varieties reported by W. Popenoe
- 1919 W. Popenoe sends material back from Guatemala
- Many others, i.e. Magoon budwood from Hawaii in 1914
- Additionally, California trees are generating their own seedling material



- An explosion of new varieties registered during the early-mid 20th Century, so much so that industry people complained about “Cats and Dogs”
- First patented varieties, the most famous being the ‘Hass’
- Growers begin to note environmental effects on varieties such as ‘Fuerte’
- Some recognition of “strains” or somaclonal variants of ‘Fuerte’ and attempts to propagate and keep these separate and documented

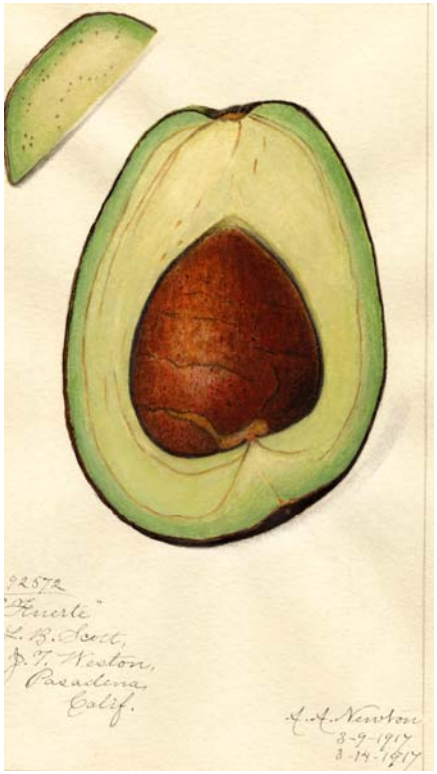
Varieties originating before 1940

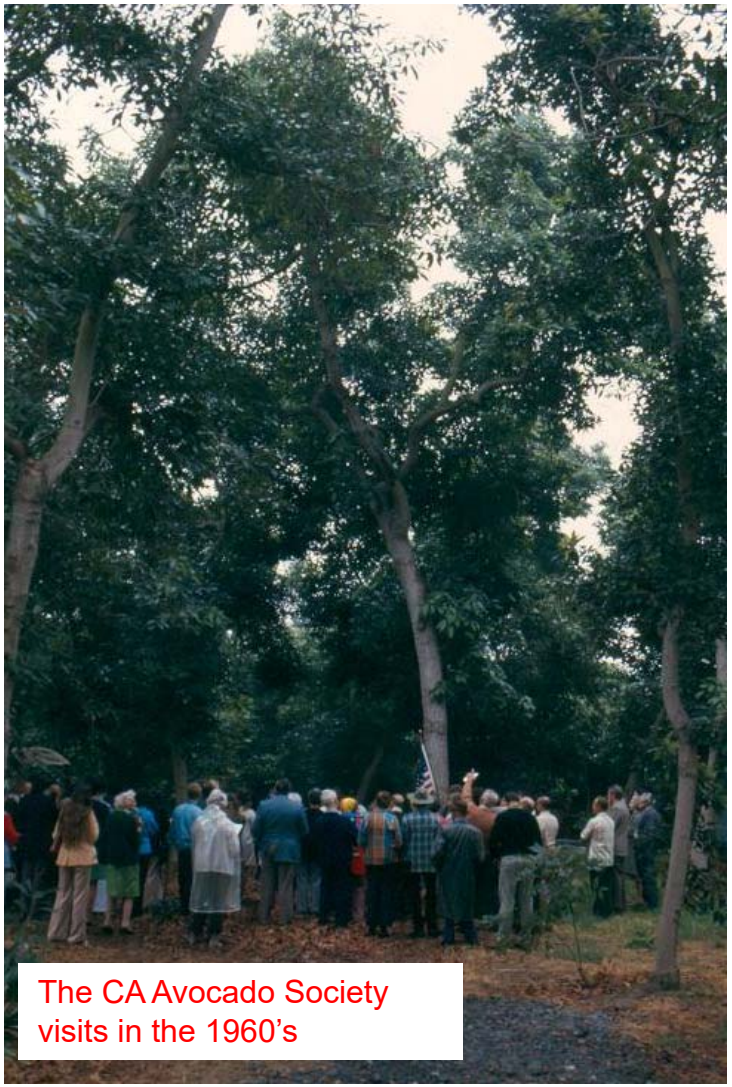
Variety	Seedling Year	Location	C.A.S. Reg. or Introduced	Patented
Lyon	1908	Hollywood	-	-
Fuerte	1911	Atlixco, MX	1915	-
Hass	1926	La Habra Hts.	1932	1935
Zutano	1926	Fallbrook	1932	-
Edranol	1927	Vista	1932	-
Bacon	1928	Buena Park	1948	-



FUERTE

- The leading variety from 1920's to 1970's
- Adapted to a wide variety of climates
- Known for high fruit quality
- Large spreading tree
- Recognized to have erratic or severe alternate bearing



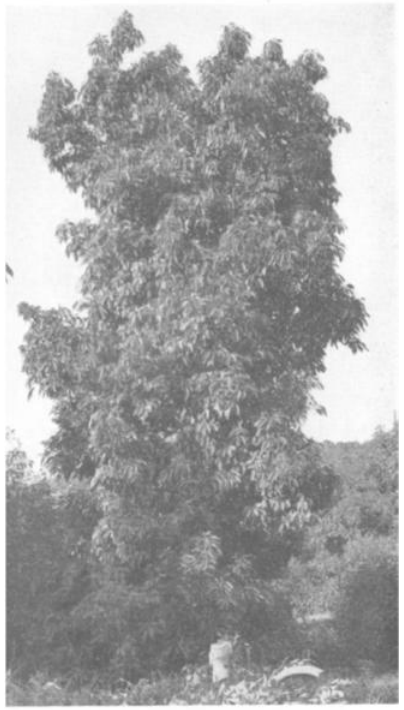


The CA Avocado Society visits in the 1960's

'HASS'

Rudolph and Elizabeth Hass

From the market standpoint the Hass would appear to have everything. Excellent quality, popular size, small seed, good shipper, its leathery skin and long season complimenting the Fuerte. Its single disadvantage is its black color which has been associated in the minds of the public with poor quality fruits. Experience is indicating however that when properly handled this color handicap can be overcome. The Hass variety gives satisfaction and repeat business follows.

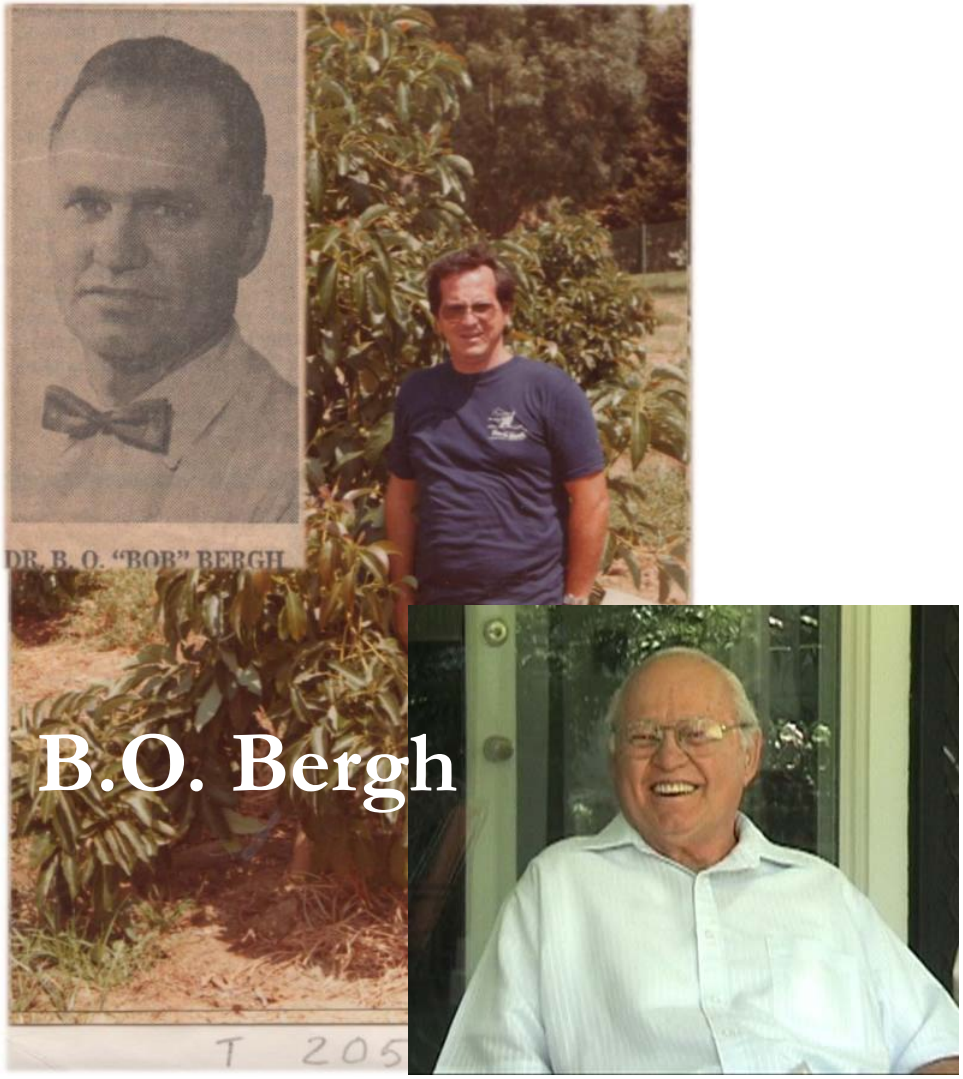


Original Hass Avocado Tree at La Habra, Calif. Photo 1945

The Hass Avocado by H. B. Griswold
California Avocado Society 1945 Yearbook 30

Varieties originating 1940 - 1980

Variety	Seedling Year	Location	C.A.S. Reg. or Introduced	Patented
Ettinger	1940	Israel	1954	-
Reed	1948	Carlsbad	1953	1967
Sharwil	1951	Qld, Australia	-	-
Pinkerton	1960	Saticoy	1974	1975



B. O. Bergh oversaw an active program from the 1950's through 1994.

Based on industry input he set out to develop a "green-skinned" Hass. This resulted in the release of 'Gwen' in 1984.

In a second wave, ~60,000 seedlings, primarily derived from 'Gwen', 'Whitsell', 'Hass' and 'Pinkerton', were planted.

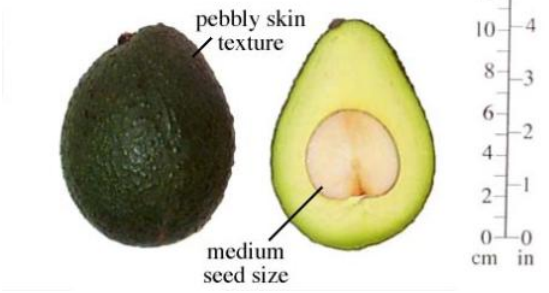
This effort yielded 'Lamb Hass', 'Sir Prize', 'Harvest', and 'GEM'.

Varieties originating after 1980

Variety	Seedling Year	Location	C.A.S. Reg. or Introduced	Patented
Gwen	-	Irvine	1982	1984
Whitsell	-	Irvine	1982	1984
Esther	-	Irvine	1982	1984
Lamb Hass	1985	Camarillo	1995	1996
Sir Prize	1986	Irvine	1995	1996
GEM	1985	Camarillo	2003	2003
Harvest	1985	Camarillo	2003	2003

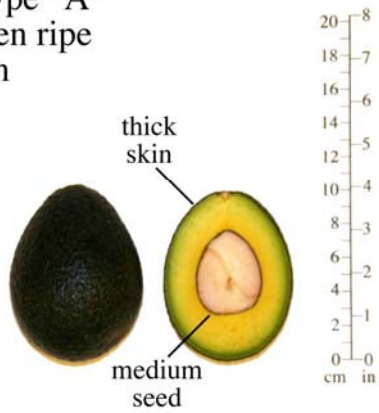
Gwen

A flower type
Green when ripe
Ovate fruit shape



GEM

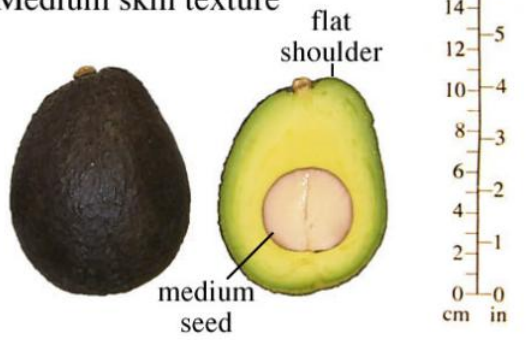
Flower Type “A”
Black when ripe
Thick skin



UC Releases since 1982

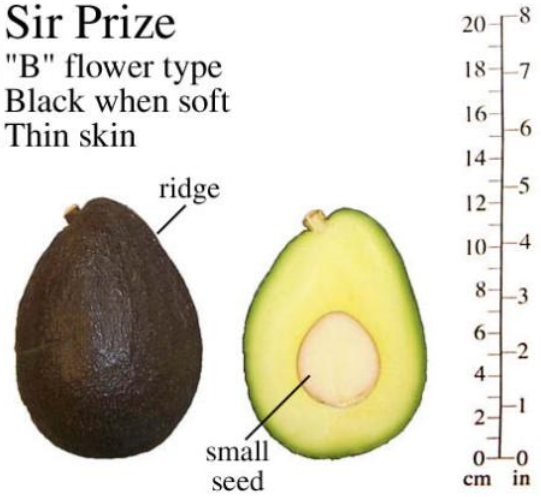
Lamb Hass

"A" flower type
Black when ripe
Medium skin texture



Sir Prize

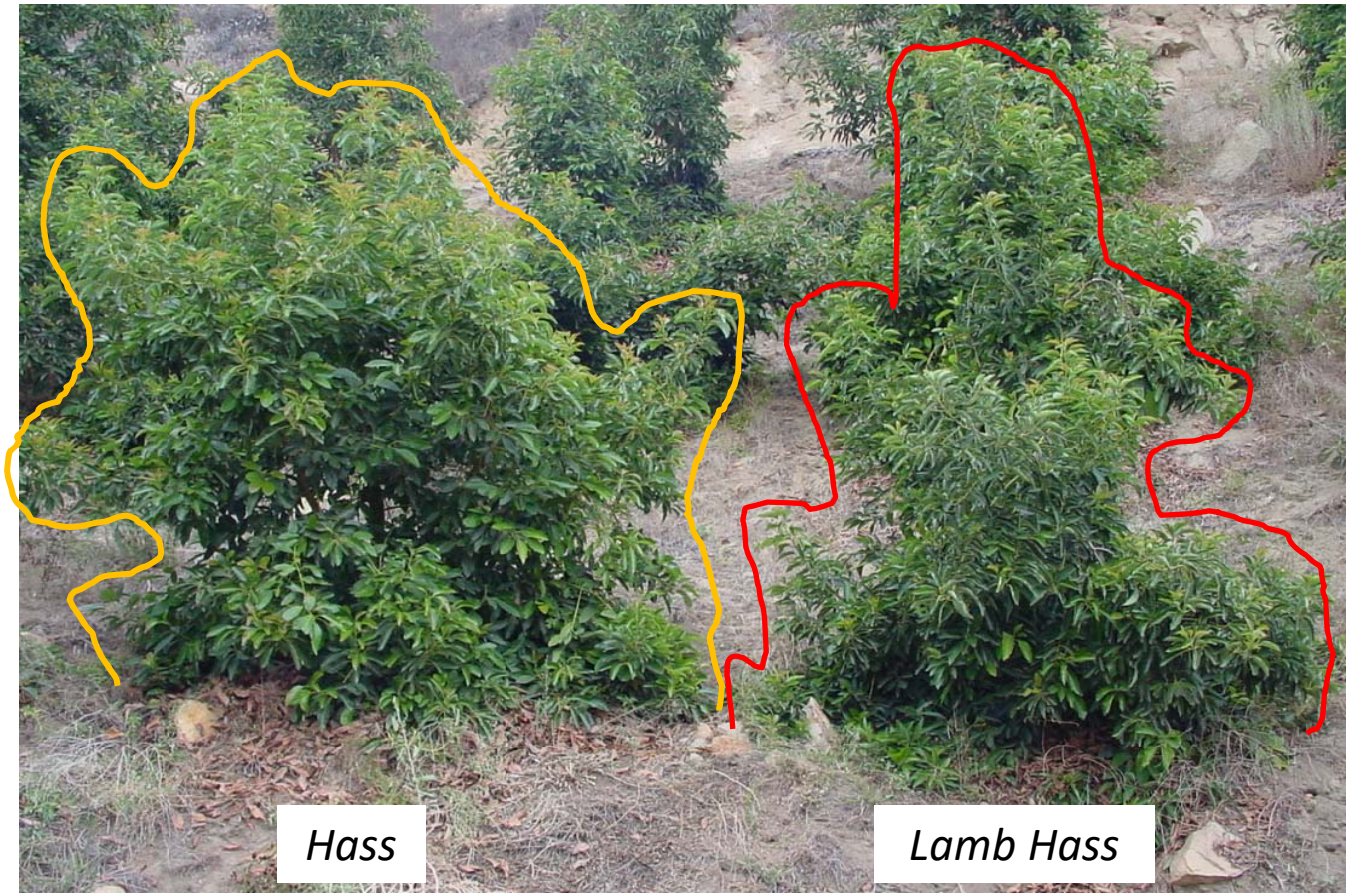
"B" flower type
Black when soft
Thin skin



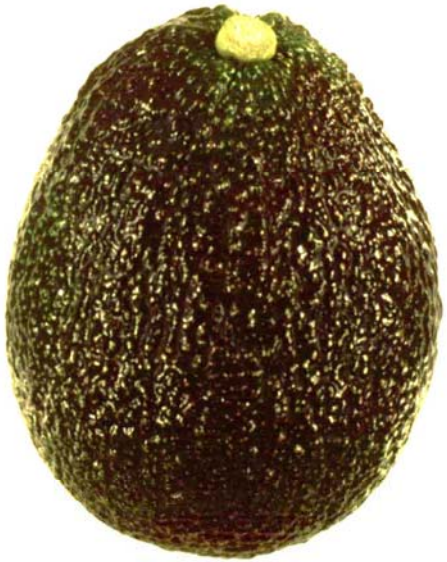
Hass

Lamb/Hass

Growth habit differences between Hass and Lamb Hass



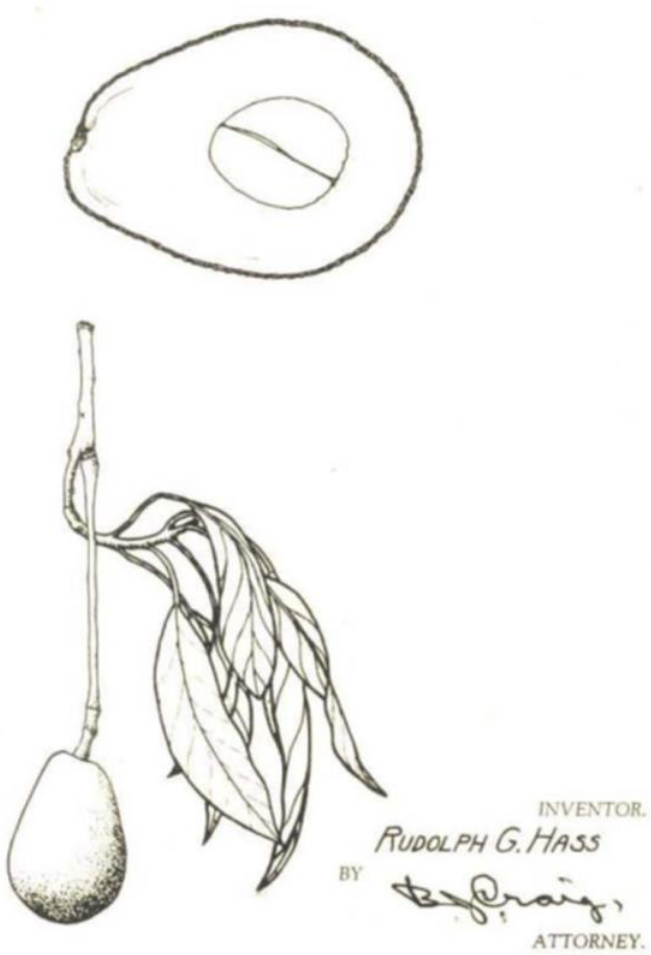
Hass



Gem

Gem is a more compact tree than Hass, very similar to Gwen
Bears fruit on the inside of the tree


Is there life after Hass (or GEM, Maluma or Carmen)?
Or should we be content with what we currently have?



Our leading cultivar, ‘Hass’ CAN BE improved:

- ✓ Tree size and structure
- ✓ Bearing habit
- ✓ Alternate bearing
- ✓ Stress tolerance (Cold, Heat, Salinity)
- ✓ Disease and pest tolerance
- ✓ Productivity
- ✓ Seasonality

It is dangerous to have an industry based on one variety

We need to go from

Here

There

To stay competitive

The challenge of finding new avocado varieties

- Long seasonality
- Fruit must be ripened in order to evaluate; ripening time depends on maturity
- Eating quality changes throughout the season
- Industry standard ‘Hass’ sets a high standard for postharvest and eating quality

Looking for:

- Precocious and low AB varieties with high fruit quality
- Upright, slender tree architecture for HD plantings

Do we have alternatives to Hass?

UCR-01

(Dusa rootstock, 01/19)

UCR-02

(Dusa rootstock, 01/19)

UCR-03

(Dusa rootstock, 01/19)

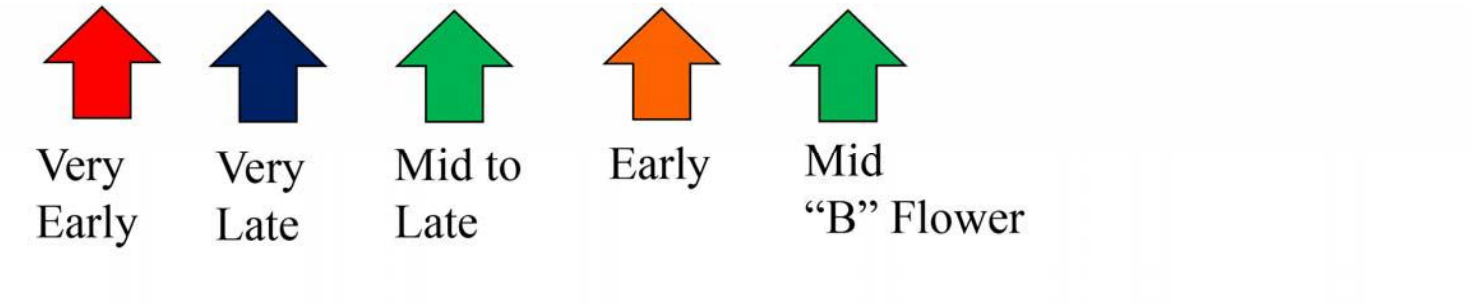
UCR-04

(Dusa Rootstock, 01/19)

UCR-05

(Dusa Rootstock, 01/19)

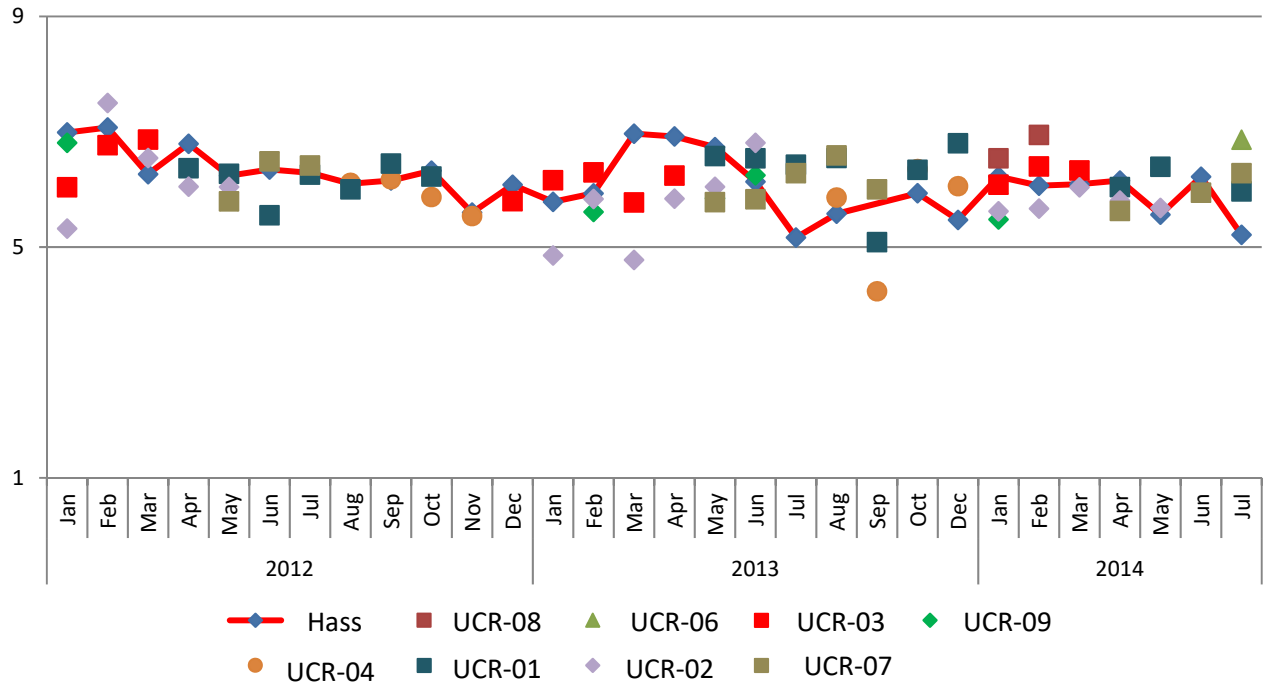
Tier 3 Planting – Santa Paula (January 2016)



How about eating quality?

Collected data on Visual and Eating Acceptability

Flavor acceptability across all years (8 new selections)



THE BIG PICTURE

Have a range of both dark skin and green skin varieties that are comparable to ‘Hass’ in terms of eating quality

We HAVE material that potentially can

- Provide 12-month market coverage
- Improved tree architecture
- Precocious
- Greater yield efficiency

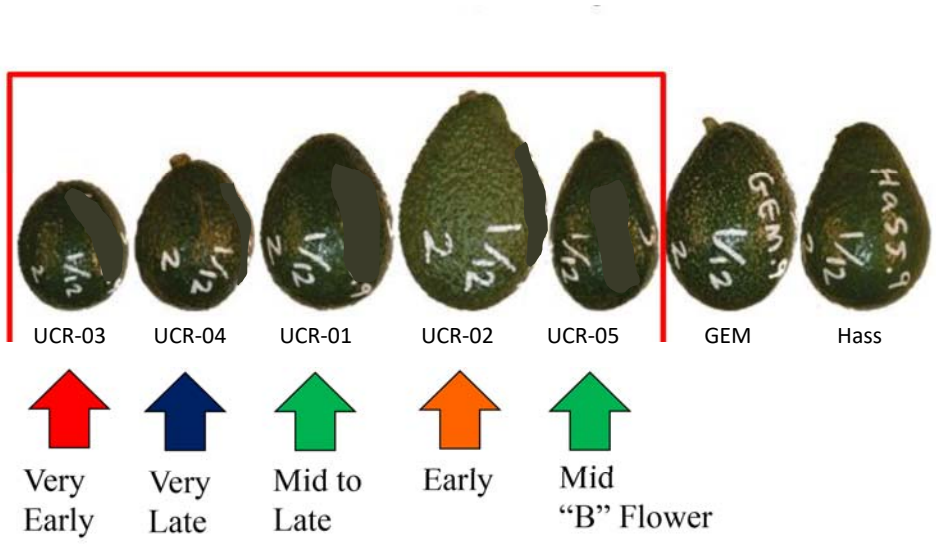
THE ULTIMATE GOAL

Enhanced productivity and production efficiency

Satisfied consumers and increased consumption

What is the future for these selections?

- UC in discussion with an international partner for release of these materials
- Moreover, we have additional selections that show promise



Thank you for your attention

Information gathered from

The California Avocado Society Yearbooks

UC Experiment Station and USDA documents

All Archived on www.avocadosource.com