



The Great Balancing Act:

Finding the perfect avocado variety

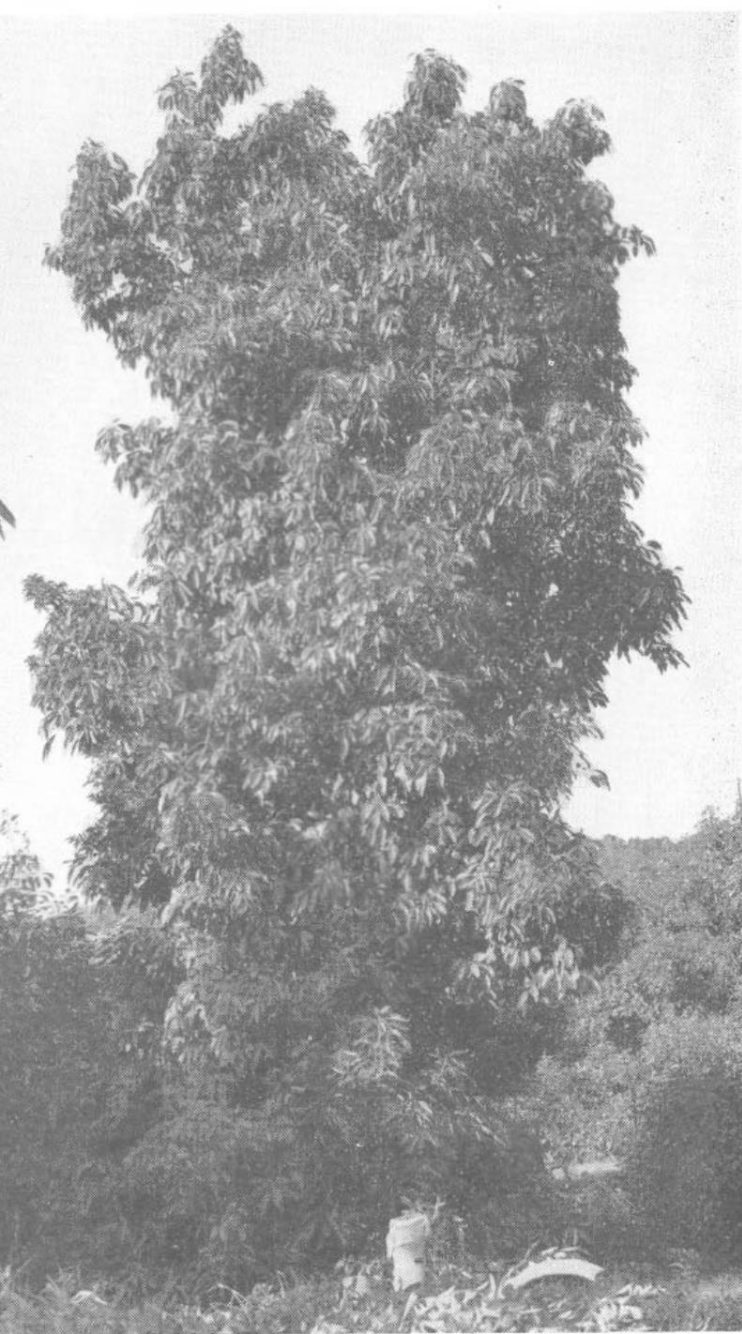
Z. Ernst, Allesbeste Boerdery

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M.L. Arpaia, University of California



92928



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

The **global** industry has
been dominated by 2
varieties over the last
100 years

Fuerte (1920 – 1970's)
Hass (1970's – present)

Alejandro Le Blanc



FUERTE

Brought from Atlixco, Mexico in 1911



THE PARENT TREE OF THE FUERTE AVOCADO

At the present time no tree in Atlixco is of greater interest to Californians than the parent Fuerte, which stands in the garden of Alejandro Le Blanc. It is believed to be about 60 years old, and its crown is approximately 25 feet high and 30 feet in spread.

Popenoe, CAS, 1919

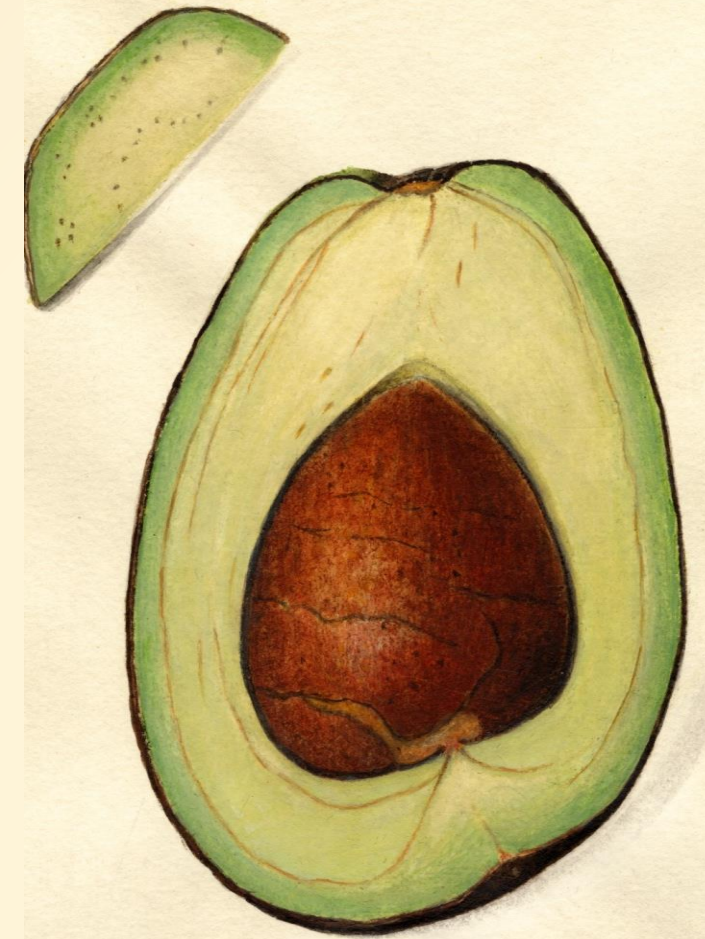
FUERTE

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



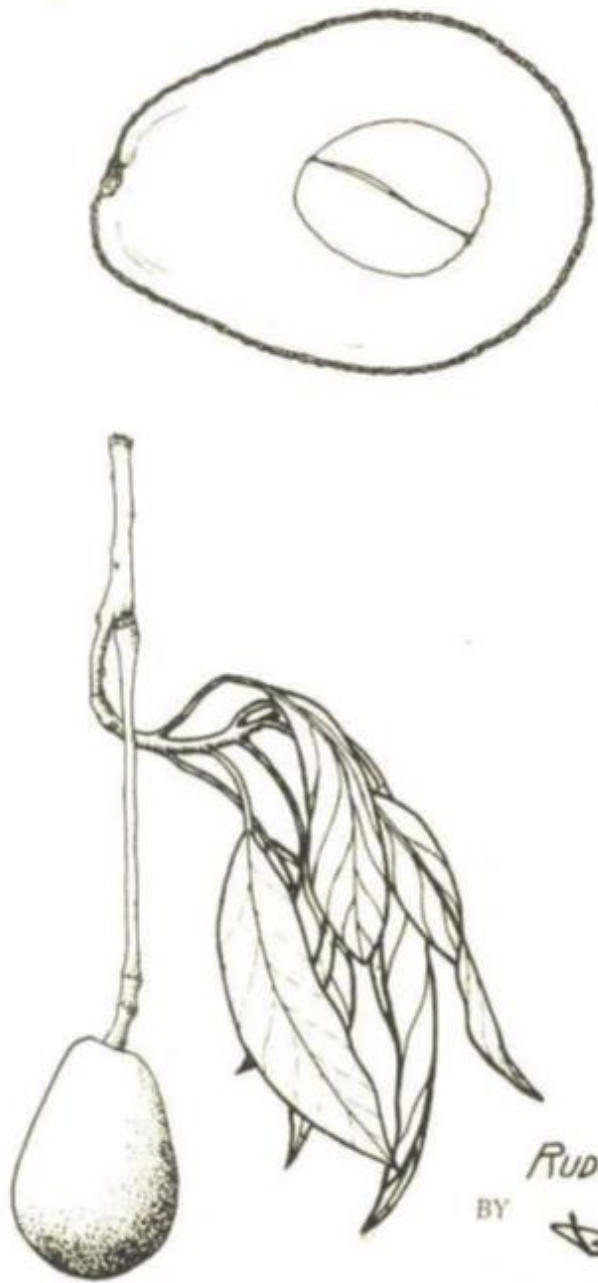
92572
"Fuerte"
L. B. Scott,
J. T. Weston,
Pasadena,
Calif.

J. A. Newton
3-9-1917
3-13-1917



92572
"Fuerte"
L. B. Scott,
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3-9-1917
3-14-1917



INVENTOR.
RUDOLPH G. HASS
BY *B. Craig*
ATTORNEY.

The rise of Hass

It took a long time

Patented in 1935



Rudolph and Elizabeth Hass

Facts about Hass

- Chance find in La Habra Heights in 1926 and patented in 1935
- High fruit quality when harvested at proper maturity
- Viewed as interesting but black skin considered a flaw as compared to leading variety Fuerte
- Did not overtake Fuerte in importance until the planting boom of the mid-1970's
- Now worldwide leading variety and major variety marketed in US



Griswold on **Hass**, 1945:

*“Its single disadvantage is its **black** color which has been associated in the minds of the public with poor quality fruits.”*

GWEN



Bergh & Martin on **Gwen**, 1988:

*“A second drawback of the **green** Gwen skin is that 80% of our production is now the black Hass, and so black is the standard and preferred in most of our markets.”*

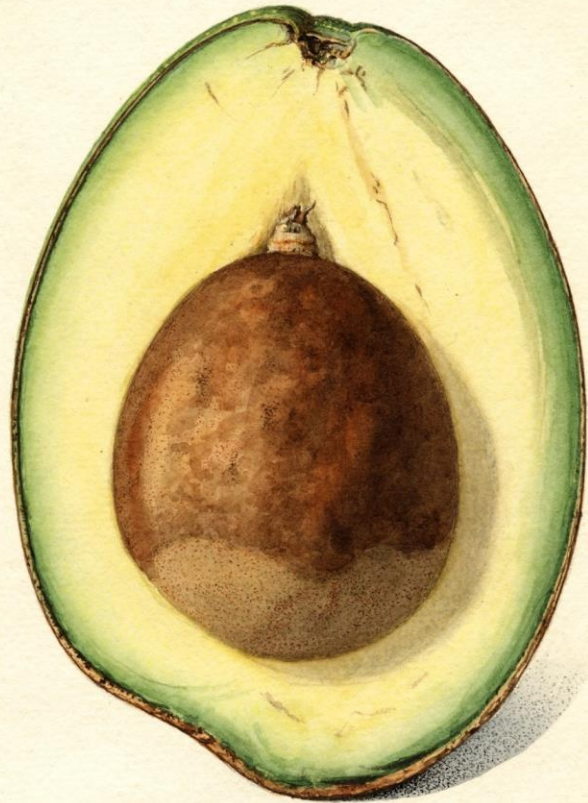
	Release Year
Gwen	1984
Esther	1984
Whitsell	1984
BL122 (Lamb Hass)	1996
4-18-5 (Sir-Prize)	1996
3-29-5 (GEM)	2003
N4 (-) 5 (Harvest)	2003
5-552	2021
BL516 (Luna UCR)	2023 (pending)
BL667 (Nobel)	Not released
5-186	Not released



Is there life beyond Hass
(or Maluma, GEM, or
anything else we may
release in the future)?

Or should we be
content with what we
currently have?

Breeding new
varieties.....



How difficult is it
"to imagine the
unseen?"

No. 92934.

Surprise

L. B. Scott

So. Pasadena, Cal.

Mr. Wagner, Hollywood, Calif.

from original tree

R. C. Steadman.

4-18-'17.

4-21-'17.

The challenge of breeding new avocado varieties

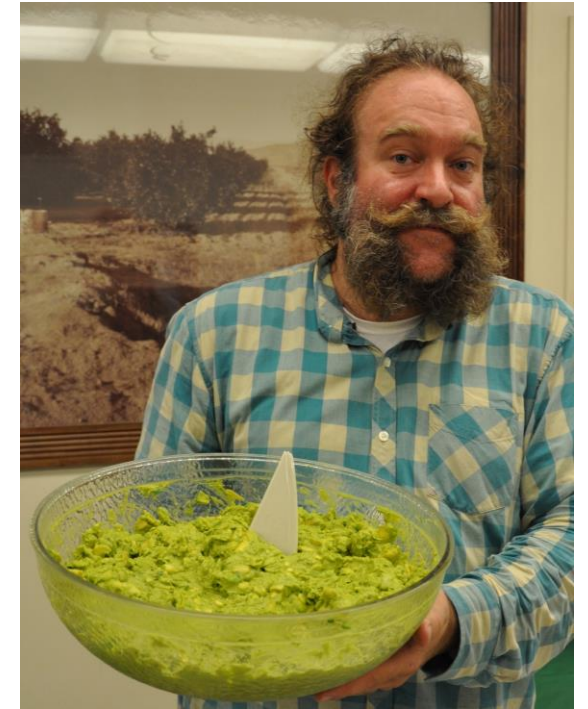


- Long process – 15 to 25 years from seed to commercialization
- “Looking for a needle in a haystack” – success is low
- Finding both the horticultural and fruit traits in a single selection is challenging
- Defining what traits are the most important

The challenge of breeding new avocado varieties



- Long seasonality
- Fruit must be ripened in order to evaluate; ripening time depends on maturity
- Eating quality changes throughout the season; it takes a lot of work to find optimum maturity window for selection
- Industry standard 'Hass' sets a high standard for postharvest and eating quality



Program Goal is to develop new varieties that:

- Expand environmental adaptability
- Enhance yield potential
- Minimize grower inputs
- Deliver consistent high-quality fruit
- Grow consumer demand

THE ULTIMATE GOAL



Enhanced
productivity
and
production
efficiency

Satisfied
consumers
and increased
consumption



Use all available tools including:
germplasm preservation, field/postharvest evaluation,
phenotyping, gene discovery and trait analysis



BL51♀ (Luna UCR™)

- ✓ "B" flower type that ripens black
- ✓ Smaller more efficient producer
- ✓ Less alternate bearing
- ✓ Excellent postharvest life
- ✓ Later maturing
- ✓ Very good eating quality