

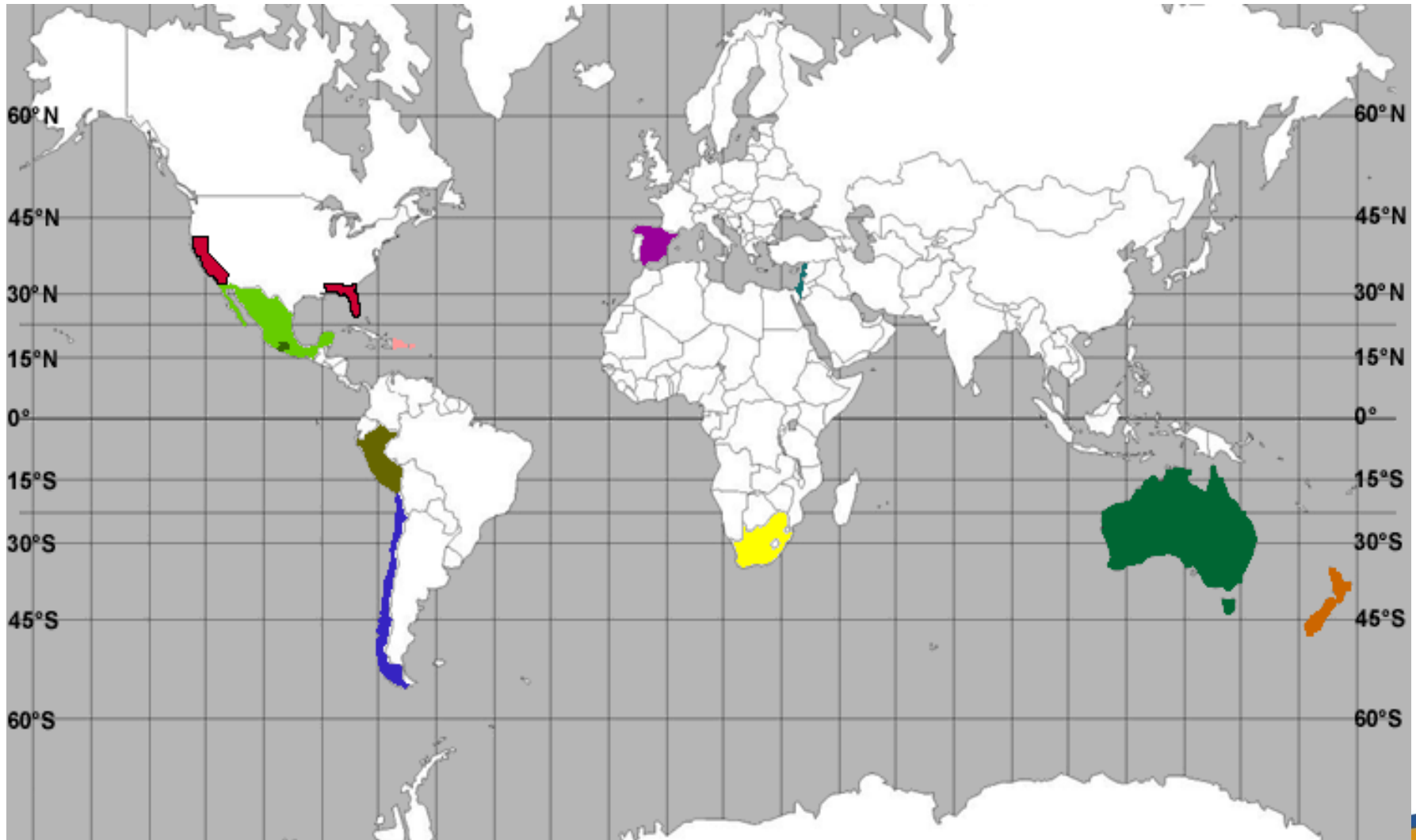
Chapter 2 - Avocado Botany and Commercial Cultivars Grown in California

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Subtropical Horticulture

Where do Avocados Come From?

- Mexico and Central American countries are the origin of avocado, wild avocados can still be found in rainforests.
- Mexico is the leading producer of avocado by far, followed by Chile and Indonesia. USA was fourth in production (2009)
- San Diego County grows almost half of all the avocados produced in the US, however this is declining due to high water prices.
- The rest of the production is from Ventura, Santa Barbara, Riverside and San Luis Obispo counties.

World Avocado Production



Varietal Production 2001-2002

Cultivar	Bearing Acreage	Estimated yield (lbs/A) in 2001-2002	Estimated yield in California (million lbs) in 2001-2002
Hass	51, 575	7,044	363.3
Fuerte	1,452	4,125	6.0
Bacon	1,961	6,645	13.0
Zutano	706	3,144	2.2
Pinkerton	1,035	4,715	4.9
Reed	430	7,163	3.1
Gwen	260	5,633	1.5
Lamb Hass	420	5,143	2.2
Other	388	3,058	1.2
Total	58,227	6,825	397.4

Varietal Production 2011-2012

Cultivar	Acreage (includes 7,800 acres of topped/stumped groves)	Yield in lbs/A in 2011-2012	Yield in California (million lbs) in 2011-2012
Hass	56,548	7,924	448.1
Lamb Hass	1,964	5,295	10.4
Other	1,117	3,312	3.7
Total	59,629	7,753	462.3

Botany

- Avocado belongs to the **Lauraceae** family
- Genus: ***Persea*** (50 other genera in Lauraceae, mostly tropical or subtropical) (a few temperate genera including *Sassafras* from eastern U.S.)



- Genus: ***Cinnamomum*** includes cinnamon and camphor species

Avocado Races (botanical varieties)

- *Persea americana* is the genus and species of the commercial avocado
 - Others such as *Persea borbonia* are immune to root rot fungus, but they are not graft compatible with commercial varieties
1. **Mexican race** (thin skinned)
 2. **Guatemalan race** (thick skinned)
 3. **West Indian race** (very tropical)

See handouts on the races and varieties

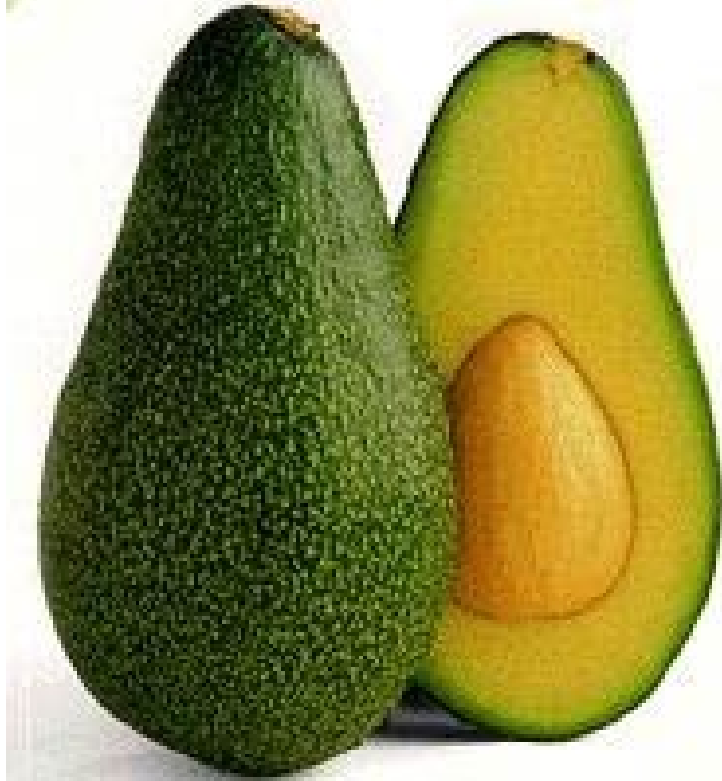
The California Varieties

- Hass and Fuerte (and many others) are Mexican – Guatemalan hybrids
 - The Mexican genes impart earlier harvest
 - The Guatemalan genes impart a thicker peel, allowing successful shipping of fruit
- An interest in West Indian as a rootstock because it has better salt tolerance

Hass



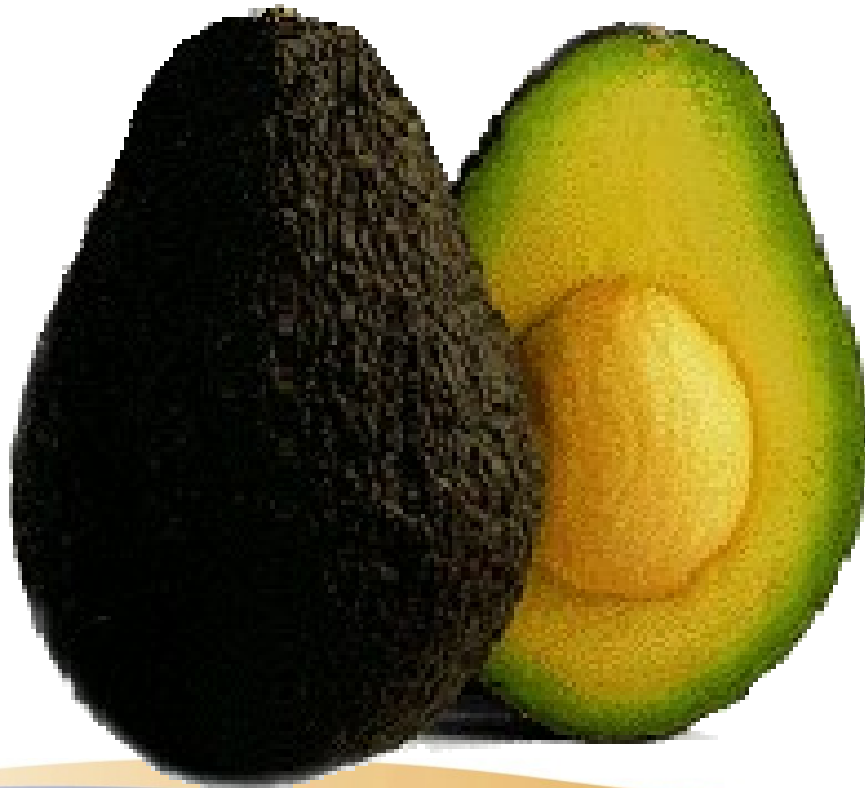
Fuerte and Pinkerton



Reed



Lamb Hass



Zutano



Bacon



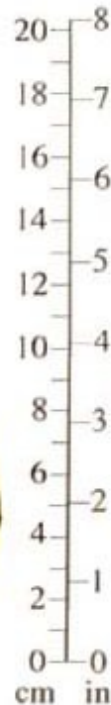
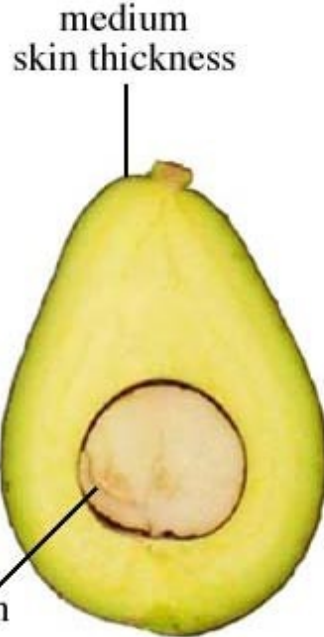
Avocado Cultivars

- Table 5, Page 25
- Problems with Hass – Why we have a breeding project
 - See page 26

Holiday (XX3)

XX3

A flower type
Green when ripe

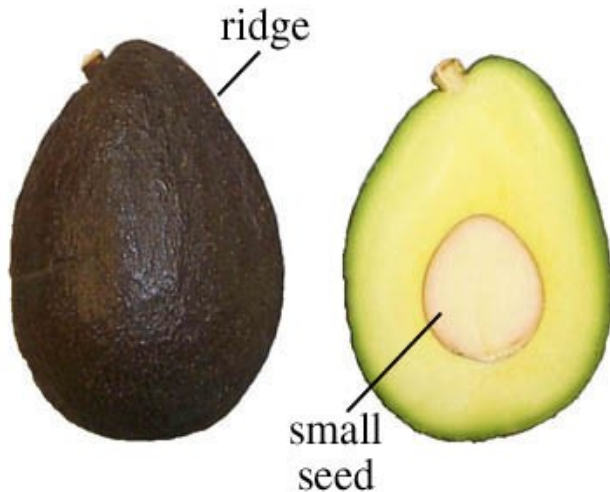


- **HOLIDAY**
- **Parentage:** Guatemalan
- **Peels:** Yes
- **Seed Size:** Medium
- **Skin Texture:** Medium
- **Blossom Type:** A
- **Fruit Shape:** Obovate
- **Skin Color Unripe:** Green
- **Skin Color Ripe:** Green
- **Skin Thickness:** Medium
- **Average Fruit Weight oz:** 18-24
- **%Ratio Skin/Seed/Flesh:** 16:13:71
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Sir Prize

Sir Prize

"B" flower type
Black when soft
Thin skin

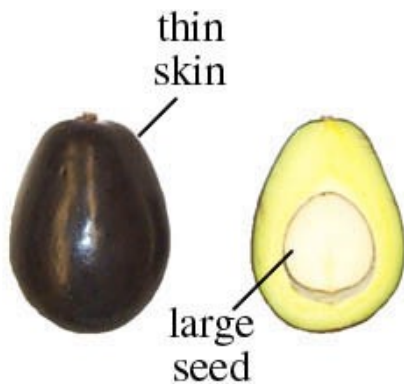


- Sir Prize
- **Parentage:** Mexican hybrid
- Peels:** Yes
- Seed Size:** Small
- Skin Texture:** Medium
- Blossom Type:** B
- Fruit Shape:** Obovate
- Skin Color Unripe:** Green
- Skin Color Ripe:** Black
- Skin Thickness:** Thin
- Average Fruit Weight oz:** 10-20
- %Ratio Seed/Skin/Flesh:** 9:8:83

Mexicola

Mexicola

"A" flower type
Black when ripe
Smooth skin

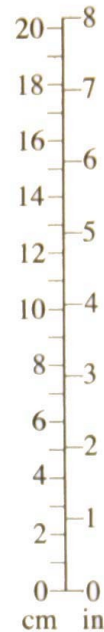
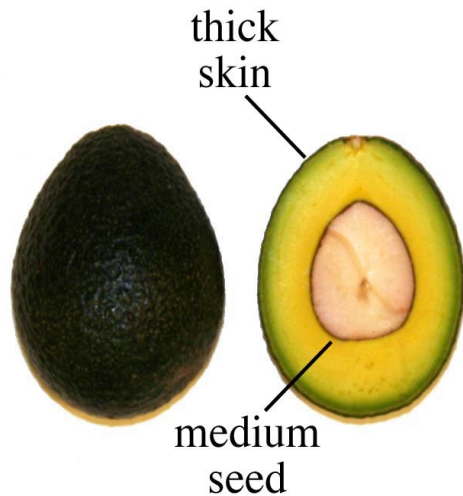


- **Parentage:** Mexican
- Peels:** No
- Seed Size:** Large
- Skin Texture:** Smooth
- Blossom Type:** A
- Fruit Shape:** Obovate
- Skin Color Unripe:** Black
- Skin Color Ripe:** Black
- Skin Thickness:** Thin
- Average Fruit Weight oz:** 4 to 6.5
- %Ratio Seed/Skin/Flesh:** 27:12:61

GEM

GEM

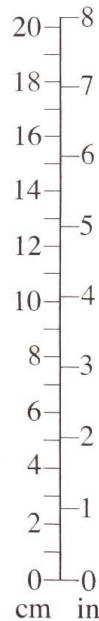
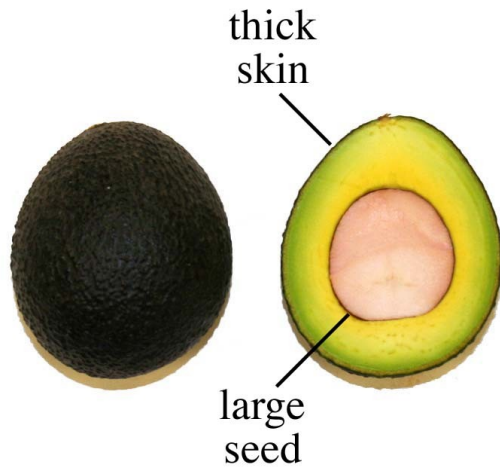
Flower Type “A”
Black when ripe
Thick skin



- **Parentage:** Guatemalan
Peels: Yes
Seed Size: Medium
Skin Texture: Medium
Blossom Type: A
Fruit Shape: Ellipsoid
Skin Color Unripe: Green to Black
Skin Color Ripe: Black
Skin Thickness: Thick
Average Fruit Weight oz: 7 to 11
%Ratio Seed/Skin/Flesh: 15:13:72
- Fruit oxidizes slower than Hass

Harvest

Harvest
Flower Type “A”
Black when ripe
Thick skin



- **Parentage:** Guatemalan
Peels: Yes
Seed Size: Large
Skin Texture: Medium
Blossom Type: A
Fruit Shape: High spheriod
Skin Color Unripe: Dark Green
Skin Color Ripe: Black
Skin Thickness: Thick
Average Fruit Weight oz: 7 to 10
%Ratio Seed/Skin/Flesh: 15:14:71
- Mature late season same as Lamb Hass or Reed

West Indian race

larger, thinner skinned and more watery than Mexican-Guatemalan hybrids



“Cukes” (non-fertilized, no seed)

fairly common in the Fuerte cultivar

