Pistachio, *Pistacia vera* (Anacardiaceae)

**CROP OF THE DAY**

**Sources**

- **Text:**
  - Mark’s Fruit Crops: http://www.uga.edu/fruit/pistacio.htm
  - http://www.aacalpistachios.com/history.htm
  - Pistachio - *Pistacia vera* L.: http://www.uga.edu/fruit/pistacio.htm
  - Pistachio nuts, production: http://www.tis-gdv.de/tis_el/ware/nuesse/pistazie/pistazie.htm
  - Iran NAP Co.: http://www.no-2.com/pistachio/

- **Photos:**
  - http://www.mattbarrett.net/photos/pistachios.htm
  - http://waynesword.palomar.edu/ecoph8.htm
Pistachio crop

- Grown in:
  - Iran, Turkey, Syria, Afghanistan, Greece, Lebanon, Pakistan; USA

- Production:

- Composition:
  - Sugar: 19%
  - Protein: > 20%
  - Oil: 50%
    - Saturated 13%
    - Mono-unsaturated 68%
    - Poly-unsaturated 15%
  - Dietary fiber 10.8 gr/100 gr
  - Vitamin E 5.2 mgr/100 gr

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<th>Country</th>
<th>Production</th>
<th>Harvested Yield</th>
<th>Area Harv</th>
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- 1985: tariff of 241% applied to pistachios from Iran; claim of ‘dumping’
- US International Trade Commission: continue?
- California: 1985 (47,000 acres); 2015 (232,655 acres) ~ 512 M lbs.
Wild *Pistachia vera*

- Northeast Iran, north Afghanistan, central Asian republics (Uzbekistan, Tadzhikistan, Kirgizia, S. Turkmenistan, S. Kazakhstan)
- Smaller, edible fruit
- Used as rootstock

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**Pistachio (I)**

- Among the most drought tolerant fruit trees
- Adaptation
  - Summer: high temp, no rainfall
  - Winter: 700-1000 h of < 7°C; break bud dormancy (= high chilling requirement)
  - Tolerates saline soils
- Reproduction:
  - Dioecious → need to mix ♂ and ♀ (1:8 ratio); 3 x 3 planting with ♂ in center
  - Wind-pollinated
  - Grafting on wild rootstock: *P. atlantica*, *P. terebinthus*, or *P. palaestina*
- $2n = 2x = 30$
**Pistachio (II)**

- Small tree, up to 20 ft
- Leaves: Composite, pinnate
- Inflorescence: panicle w/ 300 flowers; 10% fruit set, mostly terminal
- Fruit: drupe; 4-5 yrs; outer skin ("hull"), shell, nut (=cotyledons); "on" years: 50-100 lbs per tree; 1.5-2.5 tons/acre (in-shell but dehulled weight)
- At harvest: remove hulls, wash shells + nuts; dry; sort; roast and salt
- Consumption: fresh (75%); processed: ice cream, etc. (25%)

**Pistachio (III)**

- Pesteh (Persian), Pistachio (English), Pistache (French), Pistazie (German), Pistacchio (Italian), Pistacho (Spanish), Pista (Indian)
- Major production in Iran:
  - In Kerman province: 160,000 ha
  - Pistachios are in different shapes:
    - Round (Fandoghi)
    - Jumbo (Kalleqouchi)
    - Long (Akbari, Ahmadaighaei Badami)
Pistachio in CA (I)

- **Cultivars:**
  - **Female:**
    - 'Kerman' named after the major pistachio region of Iran, was introduced in the 1950's after testing for many years in California. Kerman comprises 99% of the California acreage.
    - It produces high yields of large nuts, but has heavy alternate bearing habit, produces many blanks and nuts with unsplit shells (undesirable from a market standpoint).
  - **Male:**
    - 'Peters', named after A.B. Peters, its discoverer, is the major pollinizing cultivar, and the closest to a universal pollinizer of all males.

Pistachio in CA (II)

- **The pistacio industry:**
  - began as a tax evasion mechanism. Many Californians were investing in almonds to avoid paying taxes, until legislation in the 1960's put an end to that. Some of those folks diversified into pistachios,
  - who got rich (quite by accident) when the Ayatollah Khomeini held Americans hostage in the US embassy in Iran in the late 1970's. Iran was the world's leading pistachio producer at that time, and the lack of exportation from this country following the revolution sent prices up for California nuts.
  - California production has increased so rapidly it has all but eliminated the need for pistachio import into the US.
Other uses for *Pistacia*

- **Pistacia chinensis**: ornamental
- **Pistacia lentiscus**: Mastic resin: in perfumes, chewing gums, pharmaceuticals, high grade varnishes for protecting pictures, adhesives for dental caps.
- **P. terebinthus**: resin as wine preservative

Speaking of chewing gum...

- **Recent merger:**
  - Mars bought Wrigley:
    - Mars: Cacao
    - Wrigley: resins as base: Chicle, sorva, jelutong (now synthetic rubber)
- **Chewing is an old custom**