



Olive

Oleaceae *Olea europaea* L.

Source: Magness et al. 1971

Olive trees are evergreens of small or medium size, sometimes up to 25 feet, resistant to drought, and generally very long lived. They will withstand winter temperatures to 15F. Leaves are small, 1.5 to 3 inches long, and thick through. Fruit is borne on panicles rising from leaf axils. Fruits have a thin, smooth skin, green when immature, through red to nearly black when ripe. Shape is generally oval, 0.75 by 1 inch in small-fruited kinds to 1 inch diameter and 1.5 inches long in large-fruited varieties. Each fruit has a single, elongated seed. Pulp is extremely bitter, due to tannin in raw fruit, and contains up to 20% oil.

Season, bloom to harvest: 6 to 8 months for green pickles; 8 to 10 months for ripe olives or oil.

Production in U.S.: About 55,000 tons.

Use: Pickled for green olives, brined and canned for ripe, crushed for oil.

Part of fruit consumed: All except seed. Seed sometimes crushed for oil extraction.

Last update July 2, 1996 bha

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Produce Facts

Recommendations for Maintaining Postharvest Quality

----- Olives -----

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Maturity Indices:

Green olives: size and color (even, pale green with a minimum of whitish spots (lenticels) through a straw color. An olive is considered mature if it exudes a characteristic white juice when squeezed.

Black olives: color, removal force; fruits reach this stage about 3-4 months after the green stage.

Quality Indices:

Green olives: color; freedom from mechanical damage, shrivelling, surface blemishes, scale and other insect injury, and decay. These olives are processed according to the California black-ripe style or Spanish green style canned olives.

Black olives: color, freedom from defects, oil content (12 to 25% depending on cultivar). These are processed (Greek or Italian style) or used for oil extraction.

Optimum Temperature:

5 - 7.5°C (41-45.5°F); temperatures below 5°C(41°F) cause chilling injury of fresh olives.

Optimum Relative Humidity:

90-95%

Rates of Respiration:

Temperature	5°C(41°F)	7.5°C(45.5°F)	10°C(50°F)	20°C(68°F)
Range (ml CO ₂ /kg hr)	5 - 10	8 - 12	12 - 16	20 - 40

• To calculate heat production multiply ml CO₂/kg hr by 440 to get Btu/ton/day or by 122 to get kcal/metric ton/day.

Rates of Ethylene Production: Less than 0.1 (green olives) or 0.5 (black olives) µl ethylene/kg hr at 20°C(68°F).

Responses to Ethylene:

Olives produce very little ethylene but are moderately sensitive to ethylene action above 1 ppm (loss of green color and flesh firmness).

Responses to Controlled Atmospheres (CA):

- Optimum CA: 2 - 3% O₂ + 0 - 1% CO₂; delays senescence and softening for up to 12 weeks at 5°C (41°F) or 9 weeks at 7.5°C (45.5°F).
- O₂ below 2% can cause off-flavors.

- CO₂ greater than 5% may increase the severity of chilling injury if olives are kept below 7.5°C (45.5°F).

The above information is for fresh green olives; fresh black olives should be processed as soon after harvest as possible.

Physiological Disorders:

Chilling injury (CI): CI can be a major cause of deterioration if fresh olives are stored before processing for longer than 2 weeks at 0°C (32°F), 5 weeks at 2°C (36°F), or 6 weeks at 3°C (38°F). Symptoms include internal browning that begins in the flesh around the pit and radiates outward toward the skin as time progresses. Skin browning indicates an advanced state and/ or greater CI severity. The order of cultivar susceptibility to CI is Sevillano (most susceptible) - Ascolano - Manzanillo - Mission (least susceptible).

Nailhead: This disorder is characterized by surface pitting and spotting. It results from the death and collapse of epidermal cells, which create air pockets underneath the fruit skin. Symptoms are observed on olives kept at 10°C (50°F) for 6 weeks or longer or 7.5°C (45.5°F) for 12 weeks or longer.

Carbon dioxide injury: Symptoms (internal browning and increased decay incidence and severity) result from exposure to more than 5% CO₂ for longer than 4 weeks.

Pathological Disorders:

Postharvest diseases occur if the olives have been chilled (exposed to temperatures below 5°C=41°F), mechanically damaged, not cooled promptly to the optimum temperature range of 5 to 7.5°C (41 to 45.5°F), or exposed to undesirable atmospheres (above 5% CO₂ and/or below 2% O₂).

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A circular logo with the word "BOVA" inside, set against a background of a halved olive.

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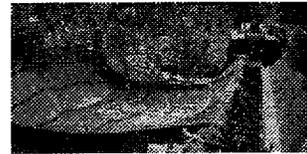
A circular logo with the word "BOVA" inside, set against a background of a halved olive.

Our workphases: No. 1 - *The Harvesting*

- The harvesting comes about by means of mechanical "shaking arms" which, by vibrating the trees, enable the olives to fall into the nets, thereby preventing any contact with the land.



- The nets are mechanically gathered and so the olives pass directly from the tree to the containers destined for the oil mill.



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Our workphases: No. 2 - *The olive processing cycle*

• Arrived at the oil mill, the olives are unloaded into the defoliator by means of a battery operated mechanical fork lift, where they are separated from the foliage.



• From here, always by means of the fork lift, they arrive at the first phase of the processing cycle where they are weighed.



• Once weighed, the olives are put into a feeder that carries them to be cleaned.



• In the washing machine the olives are cleaned over and over again with cold water to remove, if any, some residues.

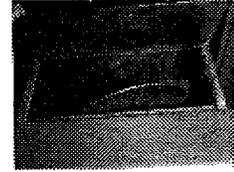


• By means of an elevator the olives pass into the olive press and from here to the kneading machine, where they become a homogeneous paste.

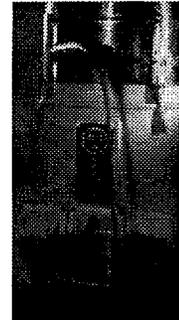


• The obtained paste passes into the centrifugal separators which allows for the separation of paste into its various components:

OLIVE RESIDUES

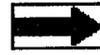


OIL



AND WATER VEGETATION.

The last, is diverted into a vat and immediately purified.



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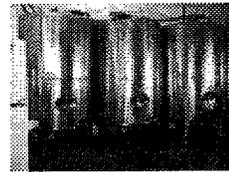
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Our workphases: No. 3 - *The Oil Preservation*

• The oil obtained from the separation by means of a pump, is introduced into stainless steel cisterns.



• In the cisterns the oil is preserved for a certain period of time until it is clear.

• Once decanted, the oil is bottled by means of special equipment.



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Our workphases: No. 4 - *Marketing of finished product*

• Thanks to the type of processing used by the Bova Raffaele Firm, the oil, once bottled is marketed under two distinct qualities:

1. EXTRA VIRGIN OLIVE OIL

From a nutritional point of view, continuous laboratory analyses have shown excellent betacarotene and alfatocoferol contents that bring about antioxide and protective effects in the biological structure.



2. EXTRA VIRGIN OLIVE OIL FROM ORGANIC FARMING

Produced in limited quantities on the Ionian Catanzarese hills, this oil has the same characteristics as the Extra Virgin Oil described above, with the exception that chemical fertilizers and antiparasitics are not used.

