Olive trees can live to be hundreds of years old and produce large amounts of fruit in their lifetime. People have been making olive oil in countries around the Mediterranean Sea for many centuries, and this can be done by simply crushing the olives. Modern commercial extraction is a more complex process, although the same basic principle of crushing the fruit to release the oil is in play.

The olive harvest is the first step in making olive oil. Traditional producers use a number of low-tech means to gather the olive crop. One common method is for workers on ladders to simply pick the olives by hand and put them into baskets tied around their waists. Or workers may beat the branches with broomsticks, collecting the olives on the ground. Commercial processors use electronic tongs to strip olives off the branches and drop them into large nets spread out below the trees. It is then important to get the olives to the mill as quickly as possible, before the level of acidity becomes too great, as this can spoil the flavour of the oil.

After the harvested olives have been brought to the mill, traditional producers pick through the olives by hand to remove dirt, leaves and twigs. Commercial producers use cleaning machines to accomplish the same goal. Fans blow away the majority of smaller particles and another machine picks out any remaining larger bits. The olives are then turned into a paste as they pass through the mill. Large 'millstones' are used for this purpose by traditional makers, whereas commercial production involves the use of a mechanised alternative, known as a hammermill. Once milled, the olive paste is ready for a process called malaxation. In this stage of the process, the milled paste is stirred and mixed for 20 to 40 minutes. This is done with wooden spoons by traditional producers, while commercial producers use a mixing machine with a metal spiral blade. The stirring causes the smaller droplets of oil released by the milling process to form larger drops. The larger drops can be separated from the paste more easily. Heating the paste during the malaxation stage increases the yield of oil. However, the use of higher heat affects the taste and decreases shelf life. To compromise, commercial producers usually heat the paste to only about 27 degrees Centigrade. Oxidation also reduces the flavour, so commercial producers may fill the malaxation chamber with an inert gas such as nitrogen so the paste avoids contact with oxygen.

Next, the oil must be separated from the paste. Traditionally, the paste is spread onto fibre discs that are stacked on top of each other in a cylindrical press. Heavy stones are placed on top of the discs, squeezing out the liquid. The oil thus produced is called first press or cold press oil. The paste is then mixed with hot water or steam and pressed once more. The second press oil doesn't have such an intense flavour. The modern commercial method of olive oil extraction uses a machine called an industrial decanter to separate the oil from the paste. This machine spins at approximately 3000 revolutions per minute. The paste and oil are easily separated because of their different densities. This is essentially the same method that is used to separate milk from cream.

After the separation process, the oil is bottled, and the bottle is capped and labelled. Small, traditional producers often do this by hand, while commercial producers use assembly line techniques. The leftover paste is sometimes used for animal feed or it can be further chemically processed to extract more olive oil, which is usually blended with other oils or used for processes such as soap making.

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HOW OLIVE OIL IS MADE

TRADITIONAL METHOD	COMMERCIAL METHOD
Harvesting Manual labourers climb **1** ..... to reach the olives. Picked by hand.	**Harvesting** **2** ..... are used to remove olives from the trees. Collected in **3** ..... on the ground.
Cleaning Dirt, leaves and twigs removed by hand.	**Cleaning** Mechanical methods. **4** ..... remove most unwanted material.
Milling **5** ..... are used to turn olives into paste.	**Milling** A machine called a **6** ..... is used.
Malaxation Paste stirred with **7** ..... to create larger drops of oil within the paste.	**Malaxation** Paste mixed in a machine. Paste heated to about 27° C. **8** ..... is used to retain flavour.
Pressing Paste applied to **9** ..... in a cylindrical press. **10** ..... are used to force the oil out of the paste.	**Pressing** An **11** ..... is used to remove oil from the paste.
Final stages Oil bottled, capped and labelled by hand.	**Final stages** **12** ..... methods are used to bottle, cap and label the oil.

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