

Institute for Sustainable Development and Innovation (ISDI) • Free field guide

Field Guide to Timing the Olive Harvest

A standing guide for every season that helps olive growers base the harvest decision on the state of the fruit in their own grove, not on the calendar or on what the neighbours are doing. It does this by calculating the maturity index from a sample of 100 olives, using simple tools and about a quarter of an hour per grove, and its last page is a field sheet ready to print.

Origin of the method: The maturity index was developed at the Venta del Llano experimental station of the Andalusian Institute of Agricultural Research and Training (IFAPA) in Mengíbar, Jaén, Spain, and published by Uceda and Frías in 1975, which is why it is known as the Jaén method; it is the method used by the International Olive Council (IOC) in its guidance. The two photographs of sorted fruit and of the eight classes in this guide are by Paul Vossen, University of California Cooperative Extension.



Image 1 Cover

FREE DIGITAL EDITION



Take the guide with you

Point your phone camera at the code to open the free digital edition of this guide on the Institute's website. Come back to it in the field whenever you need it, print a fresh field sheet each season, and share it easily with other olive growers.

theisdi.org/en/publications

Why harvest timing matters

Oil builds up inside the fruit gradually over the ripening months and peaks when the colour of the skin and flesh is complete. Harvesting early means part of the oil has not yet formed, so the grower bears the cost of harvesting and transporting more fruit for less oil in the tin; harvesting later than needed increases fruit drop, exposes the fruit to olive fly and disease, and lowers oil quality. The aim is to harvest at the right time, neither early nor late.

Ripening dates vary from season to season, from variety to variety, between rainfed and irrigated groves, and between the Jordan Valley and the highlands, so a reading from the grove itself is more reliable than any general date. The oil percentage shown at the press may also look low after rain because the fruit holds more water; it is more accurate to ask the press for the oil content on a dry-weight basis, and once it stops rising between readings, oil formation in the fruit is complete.

What you need

The test needs no equipment, only a container to collect about 100 olives, a small knife, a light-coloured cloth for sorting, the printed field sheet on the last page, and a pen.



Image 2 Testing tools

The test, step by step

1

Collect a sample of 100 olives

Collect about 100 olives from ten or more trees that represent the grove, taking a few from all four sides of each tree and from high and low branches rather than from one spot. Avoid damaged fruit and fruit that has fallen to the ground, take the sample the same way and from the same trees each time so that readings can be compared, and keep a separate sample for each variety or for any plot that differs from the rest, such as irrigated and rainfed blocks.

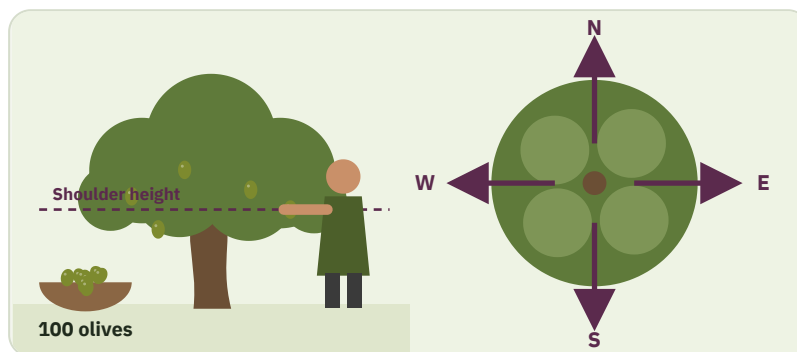


Image 3 Collecting the sample

2

Sort the olives by skin colour

Spread the olives on the light-coloured cloth and sort them into piles by skin colour, from class 0 to class 3, and put every olive with black skin in a separate pile so you can check its flesh in the next step.



Image 4 Sorting the olives

Photo: Paul Vossen, University of California Cooperative Extension

3

Cut the black olives and check the flesh

Cut each black olive crosswise with the knife down to the pit and look at the colour of the flesh. If it is white or green, the olive is class 4; if purple appears, place it in class 5 to 7 according to how far the colour reaches towards the pit.

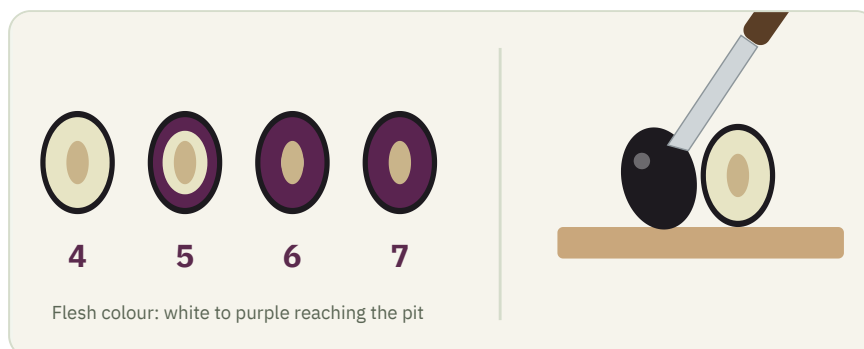


Image 5 Cutting a black olive

4

Calculate the maturity index

Multiply the number of olives in each class by the class number and add up all the results, then divide the total by the number of olives, which is 100 in a full sample. The result is the maturity index, and the calculation is done on the field sheet on the last page.

$$\text{Maturity index} = \text{sum of (olives in each class} \times \text{class number)} \div \text{number of olives}$$

5

Repeat the test every 7 to 10 days

Record the result and the date on the field sheet and repeat the test on the same grove. The run of readings shows how fast the fruit is ripening and helps you set the harvest date and plan it across groves. Start about a month before the usual date and take at least four readings over the season; you can also compare the oil percentage at the press with the index reading before finishing the harvest.



Image 6 Recording the result

Maturity classes by skin and flesh colour

The drawings below illustrate the idea and approximate the colours; real colours differ slightly from one variety to another, so it is best to use a reference photograph when sorting.

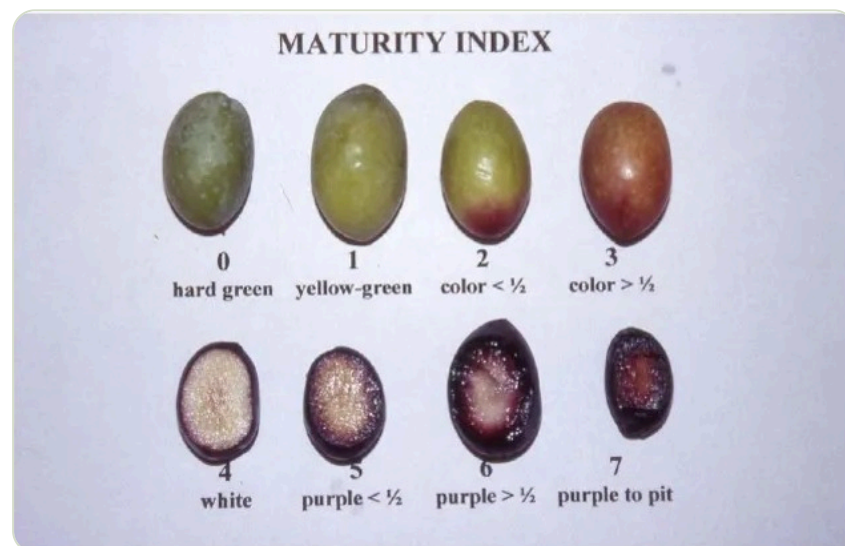


Image 7 Reference board of the eight classes

Photo: Paul Vossen, University of California Cooperative Extension

Worked example

If you sort 100 olives and find 10 in class 0, 20 in class 1, 30 in class 2, 25 in class 3 and 15 in class 4, the calculation is:

$$(10 \times 0) + (20 \times 1) + (30 \times 2) + (25 \times 3) + (15 \times 4) = 215$$

$$215 \div 100 = \mathbf{2.15}$$

A maturity index of 2.15 means the grove is still early, so repeat the test in 7 to 10 days.

Reading the result

Maturity index	State of the grove	Recommendation
Below 2	Very early; the oil has not formed yet	Delay the harvest and test again in 7 to 10 days
2 to under 3	Early harvest: less oil, pungent and bitter, rich in phenolic compounds	Suitable for a limited quantity of premium early oil, or for table olives
3 to 4	Best balance between oil quantity and quality for most varieties	The right time to start harvesting
4 to 5	Close to maximum oil, with a softer taste	Finish the harvest without further delay
Above 5	Quality declines and the risk of fruit drop and olive fly damage rises	Harvest quickly

These ranges are indicative and follow common international practice in olive-growing countries. The best ripening point varies with variety, area and irrigation, so the Institute recommends confirming the result with the agricultural extension officer at the Directorate of Agriculture or with the press.

Once you decide to harvest

The right timing only pays off when it is followed by sound practice, and the Institute recommends the following.

Spread ground sheets

Do not let the fruit touch the soil, and do not mix fruit that dropped before harvest with picked fruit, because it raises the oil's acidity

Ventilated crates, not sacks

Carry the fruit in perforated plastic crates, do not pile it up, and do not leave it wet after rain

Do not beat the branches

Pick by hand or with hand rakes; beating breaks the young shoots that carry next season's crop

Press within 24 hours

The shorter the time between picking and pressing, the better the oil keeps its quality and market value

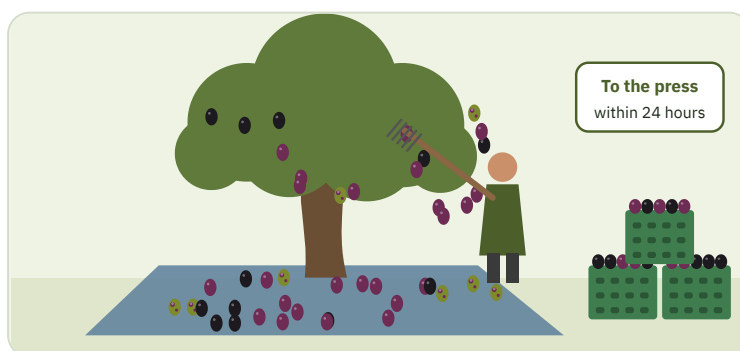


Image 8 Good harvest practice

Olive Maturity Field Sheet

Maturity index · one sheet per grove or variety

1. Collect 100 olives from 10 or more trees, from all four sides and from high and low branches.
2. Sort the olives by skin colour, then cut the black ones and check the flesh colour.
3. Multiply the number of olives in each class by the class number, add the results, and divide by 100.

Grove or plot name:

Variety:

Rainfed or irrigated:

Date:

Class	Description	No. of olives	× Class no.	Result
0	 Dark green skin, firm fruit		× 0	
1	 Yellowish-green skin, starting to soften		× 1	
2	 Red or purple spots on less than half the fruit		× 2	
3	 Red or purple over more than half the fruit		× 3	
4	 Black skin, white or green flesh		× 4	
5	 Black skin, purple flesh less than halfway in		× 5	
6	 Black skin, purple flesh more than halfway, not to the pit		× 6	
7	 Black skin, purple flesh all the way to the pit		× 7	
	Total		÷ 100 =	

Sum of results ÷ number of olives (100) = **Maturity index**

Below 2

Very early, wait

2 to 3

Limited quantity only

3 to 4

Right time to harvest

4 to 5

Finish without delay

Above 5

Harvest quickly

Running record (repeat every 7 to 10 days)

Date	Maturity index	Oil % at the press, if available	Notes



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