



OLIVE MILL POMACES



PRACTICAL
TIPS FOR
FARMERS

SUSTAINOLIVE.EU

TOWARDS A CIRCULAR OLIVE FARMING SYSTEM



The EU has decidedly committed to a regenerative agriculture model in which the use of by-products and crop residues and, therefore, the recirculation of nutrients (**circular economy**) are key strategic targets.

extra info

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The application of **composted olive mill pomace** as an organic amendment on olive grove soils is one of the most effective approaches that olive farmers can undertake to favour the **agro-ecological transition** of European agriculture.

NUMBERS SPEAK FOR THEMSELVES

Figures related to the olive mill pomace that is generated, just in Andalusia (Spain), are overwhelming.

4.1 million tons, in wet weight, produced per year (average for the last 5 harvesting campaigns)

1.1 million tons, dry weight

1300 tons of phosphorus

6
C
Carbon
12.011

700000 tons of organic carbon

19
K
Potassium
39.098

19800 tons of potassium

7
N
Nitrogen
14.007

13200 tons of nitrogen ≈

€13.2 millions

DID YOU KNOW THAT...

composting as much olive mill pomace as possible becomes essential to recirculate nutrients (mainly potassium, nitrogen and phosphorus) within the olive groves, **reducing dependence on synthetic chemical fertilizers**. In addition, a large proportion of the carbon and organic matter originating from the olive groves would be reused.

Olive mill pomace compost is mainly produced in composting plants associated with mills that, in addition to olive mill pomace, apply a diversity of raw materials (olive tree leaves, manure, straw...) and in different proportions. This, along with the variability in the dimensions of composting piles, number of turns, maturation times, etcetera, leads to a **great diversity of options for olive mill pomace composting processes**.

THE COMMON QUESTIONS

HOW MUCH ?



The nitrogen, phosphorus and potassium requirements of an olive tree are **highly variable** because they depend upon the age, tree density, productivity and whether it is rainfed or irrigated. However, as an easy rule of thumb, it is recommended that, **for a production of 5000 kg of olives**, 5 tons of composted olive mill pomace should be supplied annually per hectare. Such dose would allow for the nitrogen that is removed with the harvest to be replaced, in addition to providing sufficient amounts of potassium and phosphorus to the leaves and roots of olive trees.

WHERE ?



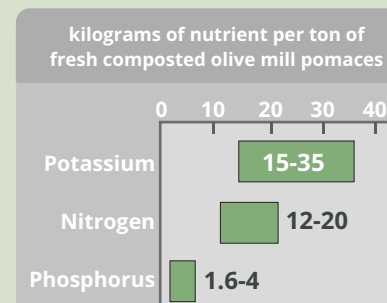
Spreading the composted olive mill pomace **along the olive inter-rows** would allow its application to become mechanised. However, it is also possible to add it directly **under the tree canopies**. For example, for a farm with 150 trees producing 5000 kg of olives per hectare, the recommended dose would be of about 30 kg per tree.

In **irrigated olive groves**, a high proportion of the root system is located closely around the humid bulb and thus access by the finer roots to the nutrients available after the decomposition of the composted olive mill pomace is limited if it is applied in the inter-rows. In this case, **composted olive mill pomace should be supplied under the tree canopies**, at least during the first few years of the olive trees.

KEEP IN MIND THAT ...

1 In rainfed and semi-arid olive groves, fine roots have the capacity to explore a great proportion of the surface in the inter-row and, therefore, access nutrients that remain available during the decomposition process of the composted olive mill pomace. In this sense, the **application of composted olive mill pomace stimulates the growth and development of the root system of olive trees**, thus increasing the volume of fertile soil and improving access to water. Ultimately, this provides the olive grove greater resistance during drought periods.

2 Nutrient contents of the composted olive mill pomace are relatively variable, although some **average intervals** can be established:



3 The nutrients embedded in composted olive mill pomaces **are not available in the short term**; they will have to be broken down firstly. The decomposition process is very slow, which is highly positive because:

- It increases soil ability to retain water for a longer period of time.
- It increases the soil sponginess.
- It increases the capacity of the soils to retain nutrients.

While the composted olive mill pomace decomposes (during the first 3-5 years of application), **other fertilizers** (preferably organic, such as chicken manure or blood meal-based) **should be added** at a dose of about half the usual one, to ensure enhanced nutrient availability rates.

WHEN and how often ?



The composted olive mill pomace becomes usually available at **the end of summer** and before the agronomic season begins. Considering its low rates of mineralization, it can be spread **during autumn** (following the harvest) and winter months.

Ideally, it should be **applied once annually**, thus taking advantage of the fact that it is produced once a year. In this way, the dose can be regulated yearly, depending on the harvest of olives obtained, its availability and market prices. If this were not possible, twice the yearly dose recommended could be applied every two years. For example, 10 tons of composted olive mill pomace every two years, considering a production of 5000 kg of olives.

HOW ?



Making use of a manure spreader.



Ideally, composted olive mill pomace should be **equally distributed** across the whole olive grove, which would improve soil fertility throughout the overall olive groves within the farm.