



OLIVE-CULTIVATION SYSTEMS IN SPAIN

Spain has been cultivating olive trees for centuries. Today, they are farmed extensively and are a key crop; as such, new management and cultivation techniques, plus technologies, are being constantly introduced in an attempt to improve profitability. Improvements, however, are only possible where the orographic conditions of the farming area are suitable for olive growing. As a result, Spain's traditional olive cultivation systems currently coexist with high-density ones, which differ in crop establishment and management, structure, staff and machinery use and costs, as well as harvesting methods and yields.

DID YOU KNOW?

Spain has 2.5 million ha of olive orchards. More than 511,000 ha are located in unfavourable areas and about 72,000 ha have >30% gradient slopes. Erosion is also a problem.

TRADITIONAL SYSTEMS

Traditional systems cultivate olive trees with 1 to 3 trunks and an advanced average age of over 25-30 years. The trees are spaced widely (7-12 × 5-10 m) and have an average density of 80-120 trees/ha. Orchards normally grow under rainfed conditions, although some farms have introduced irrigation systems. Average yields range from 2,000 to 4,000 kg of olive/hectare. Solar radiation is less effective than in high-density systems and only few farms have introduced modern mechanized harvesting means.

Traditional Machinable Olive Orchards: these farming systems cover areas with <20% gradient slopes and farmers use mechanized means (e.g. for tillage, treatments, harvesting) with varying intensity.

Traditional Non-Machinable Olive Orchards: these farming systems extend across areas with >20% gradient slopes (e.g. hillsides, mountains) and high levels of erosion, making them unfavourable. Consequently, farmers carry out their work with non-mechanized means, especially during harvesting, and adapting the cultivation system is impossible.

HIGH-DENSITY SYSTEMS

High-density systems cultivate one-trunk olive trees in favourable areas and use integral mechanized means. These orchards are high or very high density (from 200 to 2,000 trees/ha) and employ irrigation systems (from 1,500 to 2,000 m³/ha). Therefore, they produce high yields, ranging from 8,000 to 12,000 kg of olives/ha.

Intensive Olive Orchards: density is about 200-600 trees/ha with wide inter-row spacing (6-7 m). Trunk vibrators with umbrellas are commonly used for harvesting. Olive-tree proven lifespan exceeds 40 years.

Superintensive Olive Orchards: density is about 1,000-2,000 trees/ha with tree spacing of 4 × 1.5 m. Harvesters are used. Olive-tree proven lifespan is up to 15 years.

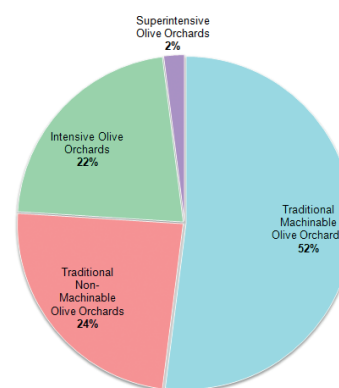


Figure 1 - Distribution of the olive cultivation systems in Spain.

Source: Asociación Española de Municipios del Olivo - AEMO (2012)

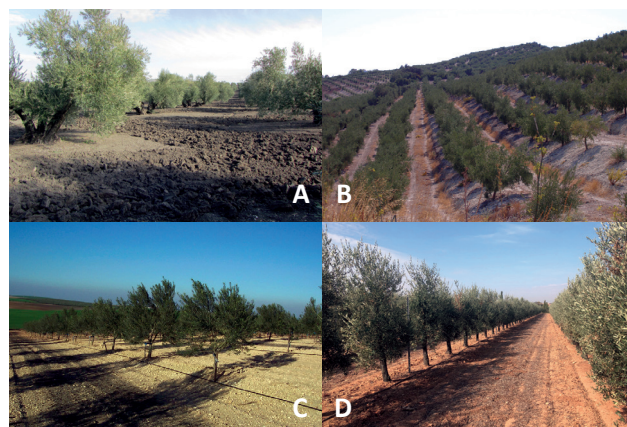


Figure 2 - a) Traditional Machinable Olive Orchards, b) Traditional Non-Machinable Olive Orchards, c) Intensive Olive Orchards and d) Superintensive Olive Orchards.

Source: a) & d) (own elaboration) and b) & c) (Juan Cano - SERVIFAPA, 2008)

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