



GREEN INFRASTRUCTURE IN WINE-GROWING LANDSCAPES

Nature-based solutions and recommended
best practices in vineyards

Identified problem:

The intensive use of herbicides for weed control leads to soil degradation, promoting the accumulation of contaminants, with an impact on biodiversity. On the other hand, **intensive tillage** for the same purpose causes erosion of vineyard soils, loss of fertility and promotes runoff and soil particle entrainment during rainfall events. This practice compromises soil health, deteriorating its structure and reducing the availability of essential elements such as water, oxygen, nutrients and biodiversity, particularly symbiotic microorganisms present in vine roots.

Best practice recommended by ECOSPHEREWINES: USE OF ECOLOGICAL MULCHING IN VINEYARDS

The use of **layers of plant matter on the soil of vineyards (mulching)** of various types (compost, green waste, wood chips, plant fibre felts, straw, etc.) protects the vineyard soil from erosion and improves water infiltration and moisture retention, fertility and biodiversity. This technique reduces the growth of unwanted weeds, decreases the need for chemical or manual weeding, and promotes the recovery of degraded soils, even after fires. When properly managed, ecological mulching in vineyards provide **diverse** environmental, social, economic, and cultural **benefits**, commonly described as **ecosystem services**.

How can this best practice be implemented?

For **ecological mulching** to be effective and provide all its benefits:

- 1. Prepare the soil:** remove unwanted weeds before applying mulch.
- 2. Choose the right material:** depending on the type of plants, local resources and climatic conditions in the area. Define the area to be covered (row or aisle), select the appropriate pH and ensure that the selected material complies with health and safety standards.
- 3. Apply an even layer of mulch manually:** it should be at least 10 cm thick to ensure its effectiveness.
- 4. Renew it periodically:** replace the organic material as it decomposes. Depending on the materials used, mulch can last between 1 and 4 years. Its rate of degradation is closely related to soil and climatic conditions.

¿Qué SERVICIOS ECOSISTÉMICOS aporta el uso de acolchados ecológicos (mulching) en el paisaje vitivinícola?

- **Regulation:**
 - Natural containment of unwanted weeds, contributing to crop efficiency and maintaining ecological balance.
 - Natural soil containment, reducing soil loss and runoff, improving soil structure and fertility and its microbiome.
 - Temperature regulation, acting as an insulator that protects the soil from extreme fluctuations.
 - Increased organic matter content and soil fertility.
 - Regulation of the water cycle, increasing water infiltration and retention and improving soil moisture.
 - Improved functional biodiversity, including arthropods and soil microorganisms, promoting habitat and improving their metabolism and reproduction.
- **Cultural:**
 - Improving and revitalising the health of the vineyard ecosystem, promoting environmental education and the transmission of traditional knowledge.



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