

Viticulture & Wine: Ecological Interdependencies

Viticulture & Wine · Answer Key · 10 Questions

1. Which specific insect is a significant natural predator of grapevine pests like leafhoppers and mealybugs, playing a crucial role in biological pest control within vineyards?

- A) Honeybee (*Apis mellifera*)
- B) Ladybug (*Coccinellidae* family)**
- C) European Earwig (*Forficula auricularia*)
- D) Praying Mantis (*Mantodea* order)

2. Certain mycorrhizal fungi, particularly arbuscular mycorrhizae, are known to form symbiotic relationships with grapevine roots. What is a primary benefit of this symbiosis for the vine?

- A) Increased susceptibility to fungal diseases
- B) Enhanced uptake of phosphorus and other nutrients**
- C) Reduced water retention capabilities
- D) Increased weed growth competition

3. The presence of specific bird species in vineyards can be an indicator of ecosystem health. Which of the following bird families is often observed consuming vineyard pests and can be considered a beneficial inhabitant?

- A) Penguins (*Spheniscidae*)
- B) Owls (*Strigiformes*)**
- C) Parrots (*Psittaciformes*)
- D) Flamingos (*Phoenicopteridae*)

4. In organic viticulture, the control of powdery mildew is often managed through natural means. Which naturally occurring microbe, a bacterium belonging to the genus **Bacillus, is effectively used as a biological fungicide against this disease?**

- A) *Bacillus subtilis***
- B) *Escherichia coli*
- C) *Staphylococcus aureus*
- D) *Salmonella enterica*

5. Soil composition and structure are vital for grapevine health. Which soil invertebrate is a key decomposer, contributing to soil aeration and nutrient cycling through its burrowing and excretory activities?

- A) Spider mite (*Tetranychus urticae*)
- B) Vine weevil (*Otiorhynchus sulcatus*)
- C) Earthworm (*Lumbricus terrestris*)**
- D) Aphid (Aphididae family)

6. Terroir, the concept encompassing all environmental factors influencing a wine's character, includes climatic conditions. Which atmospheric phenomenon, often observed in cooler wine regions, can help protect young grapevines from frost by trapping warmer air near the ground?

- A) Fog
- B) Hail
- C) Inversion layer**
- D) Rainbow

7. Biodiversity in vineyards is crucial for a healthy ecosystem. The presence of wild bees, apart from honeybees, is important for pollination. Which plant family, often found as cover crops or wild flora in vineyards, provides essential nectar and pollen resources for various bee species?

- A) Poaceae (Grass family)
- B) Fabaceae (Legume family)**
- C) Solanaceae (Nightshade family)
- D) Brassicaceae (Mustard family)

8. Sustainable viticulture practices aim to minimize environmental impact. Which specific type of sulfur compound, commonly used as a fungicide, is derived from volcanic activity and is considered a natural product in organic farming?

- A) Sodium metabisulfite
- B) Potassium sorbate
- C) Elemental sulfur**
- D) Sulfuric acid

9. The quality of water is paramount for vine growth. In regions experiencing drought, what natural phenomenon, involving the condensation of water vapor on surfaces, can contribute to vine hydration during cooler periods, especially in specific microclimates?

- A) Evaporation
- B) Transpiration
- C) Dewfall**
- D) Runoff

10. The integration of livestock, such as sheep, into vineyards is a growing practice in sustainable viticulture. What is a primary ecological benefit of using sheep for winter cover crop management?

A) Increased weed seed dispersal

B) Grazing and trampling of cover crops to prepare for spring growth and add organic matter

C) Destruction of beneficial insect habitats

D) Compaction of vineyard soil