

Plant Nutrition Quiz Answer Key PDF

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Explain how mycorrhizal associations benefit plant nutrient uptake.

Mycorrhizal associations benefit plant nutrient uptake by forming symbiotic relationships with plant roots, allowing fungi to absorb and transport essential nutrients such as phosphorus and nitrogen to the plant, while the plant provides carbohydrates to the fungi.

Which micronutrient is essential for chlorophyll synthesis?

- A. Zinc
- B. Copper
- C. Iron ✓**
- D. boron

Which soil factor most directly affects nutrient availability to plants?

- A. Soil texture
- B. Soil pH ✓**
- C. Soil temperature
- D. Soil color

Which nutrient is primarily responsible for chlorophyll production in plants?

- A. Phosphorus
- B. Nitrogen ✓**
- C. Potassium
- D. Calcium

Which environmental factors affect nutrient uptake in plants? (Select all that apply)

- A. Light intensity ✓**

- B. Soil pH ✓**
- C. Air pressure
- D. Water availability ✓**

Discuss the impact of soil pH on nutrient availability and plant health.

Soil pH affects nutrient availability by influencing the solubility of minerals; for instance, a pH of 6-7 is generally ideal for most crops, while extremes can lead to deficiencies in essential nutrients like nitrogen, phosphorus, and potassium.

Which elements are considered micronutrients for plants? (Select all that apply)

- A. boron ✓**
- B. Magnesium
- C. Zinc ✓**
- D. molybdenum ✓**

What is the primary function of calcium in plants?

- A. Photosynthesis
- B. Cell wall stability ✓**
- C. Energy transfer
- D. Enzyme activation

Which nutrient is crucial for energy transfer in plants?

- A. Magnesium
- B. Sulfur
- C. Phosphorus ✓**
- D. Chlorine

Which type of fertilizer is known for providing nutrients slowly over time?

- A. Quick-release
- B. Liquid
- C. Organic ✓**

D. Inorganic

What are common symptoms of potassium deficiency in plants? (Select all that apply)

- A. Leaf necrosis ✓**
- B. Stunted growth
- C. Intervenal chlorosis
- D. Weak stems ✓**

Compare and contrast the roles of macronutrients and micronutrients in plant nutrition.

Macronutrients are required in larger amounts and include nitrogen, phosphorus, and potassium, which are vital for growth and development, while micronutrients are needed in smaller quantities, such as iron and zinc, and are essential for various biochemical processes.

What is the main role of potassium in plant nutrition?

- A. Root development
- B. Leaf growth
- C. Stomatal regulation ✓**
- D. Cell wall formation

Which nutrients are involved in enzyme activation in plants? (Select all that apply)

- A. Potassium ✓**
- B. Calcium
- C. Magnesium ✓**
- D. Copper ✓**

Which of the following are macronutrients required by plants? (Select all that apply)

- A. Nitrogen ✓**
- B. Iron
- C. Potassium ✓**
- D. Zinc

What are the consequences of nutrient deficiencies on plant growth and development? Provide examples.

Nutrient deficiencies can lead to various consequences on plant growth and development, such as stunted growth, chlorosis, poor flowering, and increased vulnerability to pests and diseases. For instance, a lack of nitrogen causes yellow leaves and reduced growth, while phosphorus deficiency results in dark green leaves and weak root systems.

Describe the process by which plants absorb nutrients from the soil.

Plants absorb nutrients from the soil through their roots, using active transport to take up minerals and nutrients, often with the help of mycorrhizal fungi.

Which of the following practices can improve soil nutrient availability? (Select all that apply)

- A. Crop rotation ✓**
- B. Over-fertilization
- C. Maintaining optimal pH ✓**
- D. Waterlogging

What symptom is commonly associated with nitrogen deficiency in plants?

- A. Intervenal chlorosis
- B. Leaf necrosis
- C. Stunted growth
- D. Yellowing of leaves ✓**

How do sustainable fertilization practices contribute to plant nutrition and environmental health?

Sustainable fertilization practices contribute to plant nutrition and environmental health by using organic fertilizers, crop rotation, and cover cropping to improve soil quality and nutrient availability, while reducing pollution and promoting biodiversity.