

Advanced Agricultural Science

Agriculture · Practice Test · 25 Questions

1. Which soil horizon, commonly referred to as subsoil, primarily contains accumulated minerals leached from the layers above?

- A) O Horizon
- B) A Horizon
- C) B Horizon
- D) C Horizon

2. What is the primary function of the process known as 'nitrification' in the nitrogen cycle within agricultural soil?

- A) Conversion of ammonia to nitrates
- B) Fixation of nitrogen from air
- C) Denitrification of soil
- D) Absorption of nitrogen by roots

3. In livestock management, what does the term 'feed conversion ratio' (FCR) specifically measure?

- A) Weight of water consumed vs weight gained
- B) Efficiency of turning feed into body mass
- C) Time taken for animals to reach maturity
- D) Percentage of protein in animal feed

4. Which nutrient is specifically identified as the primary limiting factor for plant growth in highly acidic, weathered Australian soils?

- A) Potassium
- B) Nitrogen
- C) Phosphorus
- D) Magnesium

5. What is the primary role of a 'legume' in a crop rotation system regarding soil health?

- A) Increasing soil salinity
- B) Fixing atmospheric nitrogen
- C) Reducing soil pH levels
- D) Increasing weed germination

6. Which irrigation method is most effective at reducing water loss through evaporation in arid agricultural regions?

- A) Furrow irrigation
- B) Flood irrigation
- C) Drip irrigation
- D) Sprinkler irrigation

7. What is the scientific term for the loss of soil fertility due to the excessive accumulation of salts in the root zone?

- A) Salinization
- B) Leaching
- C) Erosion
- D) Calcification

8. In genetics, what is the 'heterosis' effect often utilized for in commercial livestock breeding?

- A) Reducing gestation periods
- B) Increasing disease resistance in purebreds
- C) Superior performance of crossbred offspring
- D) Controlling gender ratios

9. Which component of an Integrated Pest Management (IPM) program involves the introduction of natural predators to control crop pests?

- A) Cultural control
- B) Biological control
- C) Chemical control
- D) Mechanical control

10. What is the purpose of 'vernalization' in the development of certain winter cereal crops?

- A) Requirement of cold exposure to trigger flowering
- B) Accelerated growth in high heat
- C) Prevention of pest infestation
- D) Improvement of grain protein quality

11. Which livestock production system is characterized by high stocking densities and rapid turnover cycles?

- A) Extensive grazing
- B) Pastoralism
- C) Intensive confinement
- D) Organic rotational grazing

12. What is the primary objective of 'no-till' farming practices regarding soil structure?

- A) Increasing soil compaction
- B) Promoting rapid decomposition
- C) Minimizing physical disturbance to soil
- D) Facilitating easier weed removal

13. Which essential plant macronutrient is most responsible for the development of strong root systems and energy transfer via ATP?

- A) Phosphorus
- B) Nitrogen
- C) Calcium
- D) Sulfur

14. What does the 'cation exchange capacity' (CEC) of soil determine?

- A) The water retention ability of sand
- B) The soil's ability to hold and supply nutrients
- C) The speed of nutrient leaching
- D) The total biomass of soil microbes

15. Which greenhouse gas is most commonly associated with enteric fermentation in ruminant livestock?

- A) Nitrous oxide
- B) Carbon dioxide
- C) Methane
- D) Ozone

16. In plant pathology, what is a 'vector' in the context of viral crop diseases?

- A) The viral DNA strand
- B) The organism that transmits the virus
- C) The symptom shown on the leaf
- D) The pesticide used to treat the virus

17. What is the function of the 'cambium' layer in the stems of dicotyledonous crops?

- A) Water transport
- B) Photosynthesis
- C) Secondary growth (thickening)
- D) Nutrient storage

18. Which type of erosion is characterized by the formation of small, shallow channels caused by concentrated water runoff?

- A) Sheet erosion
- B) Rill erosion
- C) Gully erosion
- D) Wind erosion

19. What is the defining characteristic of a 'monoculture' farming system?

- A) Growing multiple species in one field
- B) Growing a single crop species repeatedly
- C) Rotating crops every season
- D) Integrating livestock with crops

20. Which hormone is naturally produced by plants to stimulate fruit ripening and senescence?

- A) Auxin
- B) Gibberellin
- C) Ethylene
- D) Cytokinin

21. What is the purpose of 'calcium carbonate' (lime) application in agricultural soil management?

- A) Lowering soil pH
- B) Increasing soil pH
- C) Increasing phosphorus toxicity
- D) Reducing soil moisture content

22. In wool production, what does the term 'micron' measure?

- A) The length of the wool fibre
- B) The diameter of the wool fibre
- C) The weight of the fleece
- D) The tensile strength of the fibre

23. Which agricultural technology utilizes satellite imagery to apply inputs like fertilizer at varying rates across a field?

- A) Precision agriculture
- B) Conventional tillage
- C) Subsistence farming
- D) Hydroponics

24. What is the primary function of 'stomata' on the underside of plant leaves?

- A) Water absorption
- B) Gas exchange
- C) Structural support
- D) Light absorption

25. Which measure of soil moisture represents the amount of water held after excess water has drained away by gravity?

- A) Permanent wilting point
- B) Field capacity
- C) Hygroscopic water
- D) Saturation point