Crop Science Reviewer

By Agriculture Review

1. Which of the following plant families does sweet potato (Ipomoea batatas) belong to?

a) Solanaceae

b) Convolvulaceae

c) Euphorbiaceae

d) Dioscoreaceae

2. Pineapple is highly adapted to arid conditions due to its specialized photosynthetic pathway. Which pathway does it utilize to minimize water loss?

a) C_3 pathway

b) C_4 pathway

c) Crassulacean Acid Metabolism (CAM)

d) Calvin-Benson cycle

3. Rice and wheat are staple cereals that utilize the C_3 photosynthetic pathway. What is the first stable product of carbon fixation in these crops?

a) 3-phosphoglycerate (3-PGA)

b) Oxaloacetic acid (OAA)

c) Malic acid

d) Ribulose bisphosphate (RuBP)

4. C_4 plants are generally more efficient at high temperatures and light intensities compared to C_3 plants. Which of the following is a classic C_4 crop?

a) Soybean

b) Maize (Corn)

c) Potato

d) Cotton

5. Based on photoperiodism, soybean requires uninterrupted long nights to transition from vegetative to reproductive stages. It is classified as a:

a) Long-day plant

b) Short-day plant

c) Day-neutral plant

d) Intermediate-day plant

6. In agronomic classification, crops that are fast-growing and planted between successive plantings of a main crop to utilize residual moisture and nutrients are called:

a) Cover crops

b) Companion crops

c) Catch crops

d) Trap crops

7. A crop planted specifically to attract insects or pests away from the main economic crop is known as a:

a) Nurse crop

b) Green manure crop

c) Silage crop

d) Trap crop

8. Legumes are known for their symbiotic nitrogen-fixing ability. To which botanical family do major grain legumes like mungbean and peanut belong?

a) Fabaceae

b) Poaceae

c) Asteraceae

d) Brassicaceae

9. The inflorescence of a rice plant, which bears the spikelets containing the grains, is botanically classified as a:

a) Spike

b) Raceme

c) Umbel

d) Panicle

10. Which of the following crops is considered a day-neutral plant, meaning its flowering is primarily regulated by age and environmental conditions rather than day length?

a) Onion

b) Chrysanthemum

c) Tomato

d) Sugarcane

11. The Harvest Index (HI) is a measure of a crop's efficiency in partitioning photosynthates. What is the correct formula for Harvest Index?

a) Economic Yield ÷ Biological Yield

b) Biological Yield ÷ Economic Yield

c) Grain Yield ÷ Straw Yield

d) Total Biomass ÷ Grain Yield

12. Cardinal temperatures dictate plant growth. What is the generally accepted base (minimum) temperature for the growth of rice?

a) 5°C

b) 10°C

c) 15°C

d) 20°C

13. A farmer notices stunted growth and a distinct dark green color with purple margins on the undersides of older corn leaves. This symptom indicates a deficiency in:

a) Nitrogen

b) Potassium

c) Phosphorus

d) Zinc

14. Interveinal chlorosis appearing first on the younger, upper leaves while the veins remain green is a classic symptom of which micronutrient deficiency?

a) Iron

b) Magnesium

c) Nitrogen

d) Molybdenum

15. Because nitrogen is highly mobile within the plant, its deficiency symptoms first appear as general yellowing (chlorosis) on which part of the plant?

a) The apical meristem

b) The older, lower leaves

c) The youngest, upper leaves

d) The developing fruits

16. In water management for wheat, irrigation at the Crown Root Initiation (CRI) stage is critical for maximizing yield. When does CRI typically occur?

a) At the time of sowing

b) 10-12 days after sowing

c) 20-25 days after sowing

d) During the booting stage

17. The physiological process by which a plant loses water in the form of vapor primarily through the stomata of its leaves is called:

a) Guttation

b) Evaporation

c) Respiration

d) Transpiration

18. Which plant hormone is primarily responsible for maintaining apical dominance by suppressing the growth of lateral buds?

a) Auxin

b) Cytokinin

c) Gibberellin

d) Ethylene

19. During periods of severe drought stress, plants produce higher levels of this hormone, which triggers the closure of stomata to conserve water. Which hormone is this?

a) Indole-3-acetic acid (IAA)

b) Abscisic acid (ABA)

c) Zeatin

d) Salicylic acid

20. If a crop field produces a total biological yield of 12 tons per hectare, and the harvested economic yield (grain) is 4.8 tons per hectare, what is the Harvest Index?

a) 2.5

b) 0.6

c) 0.4

d) 0.33

21. Soil pH significantly affects nutrient availability. What is the generally recommended optimal soil pH range for the cultivation of most agricultural crops?

a) 4.5 to 5.5

b) 6.0 to 7.0

c) 7.5 to 8.5

d) 8.5 to 9.5

22. Mycorrhizae form a symbiotic relationship with plant roots, acting as an extension of the root system. They are most notable for enhancing the uptake of which highly immobile nutrient?

a) Nitrogen

b) Calcium

c) Sulfur

d) Phosphorus

23. The cropping system practice of growing two or more crops simultaneously in the same field, often in alternating rows, is known as:

a) Intercropping

b) Crop rotation

c) Relay cropping

d) Monoculture

24. Which cropping system involves planting a succeeding crop into a standing crop before the first crop is harvested?

a) Ratoon cropping

b) Strip cropping

c) Relay cropping

d) Alley cropping

25. In quality seed production, the systematic removal of off-types, diseased plants, and weeds from the seed field before harvest is called:

a) Thinning

b) Roguing

c) Pruning

d) Weeding

26. Minimum tillage or zero tillage is an agricultural practice primarily aimed at:

a) Increasing soil compaction

b) Maximizing soil aeration for rapid decomposition

c) Eliminating the need for herbicides

d) Reducing soil erosion and conserving soil moisture

27. Which of the following crops is most commonly managed using a ratoon cropping system, where new shoots are allowed to grow from the stubble left after harvesting?

a) Sugarcane

b) Peanut

c) Mungbean

d) Radish

28. Applying agricultural lime to highly acidic soils provides several benefits. What is the primary chemical benefit of this practice?

a) Increasing the solubility of heavy metals

b) Adding nitrogen to the soil

c) Alleviating aluminum and manganese toxicity

d) Decreasing the soil's cation exchange capacity

29. The practice of growing a crop (often a legume) and plowing it under while it is still green and actively growing to improve soil organic matter is known as:

a) Mulching

b) Green manuring

c) Composting

d) Fallowing

30. The relationship between leguminous plants and Rhizobium bacteria is a classic example of:

a) Mutualism

b) Parasitism

c) Commensalism

d) Amensalism

31. In the formal seed multiplication chain, which seed class is the direct progeny of Breeder seed and serves as the source for Registered seed?

a) Certified seed

b) Foundation seed

c) Good agricultural seed

d) Nucleus seed

32. Under the Philippine seed certification standards (BPI-NSQCS), what is the official tag color affixed to bags of Certified seeds?

a) White

b) Red

c) Green

d) Blue

33. The Tetrazolium (TZ) test is a rapid biochemical method used to assess seed viability. A viable seed will react with the chemical, staining the living tissues what color?

a) Red or pink

b) Blue or purple

c) Black or brown

d) Yellow or green

34. Seeds of many leguminous trees exhibit hard seed coat dormancy, preventing water imbibition. This type of dormancy is most effectively broken by:

a) Stratification (cold treatment)

b) Vernalization

c) Scarification

d) Photoperiodic exposure

35. In plant breeding, mass selection is one of the oldest methods of crop improvement. Selection of individual plants in this method is based strictly on their:

a) Genotype

b) Phenotype

c) Combining ability

d) Pedigree record

36. During seed germination, if the hypocotyl elongates and pushes the cotyledons above the soil surface (as seen in mungbean), it is classified as:

a) Hypogeal germination

b) Viviparous germination

c) Coleoptile emergence

d) Epigeal germination

37. The phenomenon where first-generation (F_1) offspring exhibit superior growth, yield, or stress tolerance compared to both of their homozygous parents is known as:

a) Heterosis (Hybrid vigor)

b) Inbreeding depression

c) Pleiotropy

d) Epistasis

38. To produce controlled hybrid seeds in self-pollinating crops like rice, breeders must manually remove the anthers from the female parent before pollen shedding. This process is called:

a) Pollination

b) Emasculation

c) Bagging

d) Introgressing

39. Orthodox seeds are characterized by their ability to:

a) Germinate while still attached to the mother plant

b) Die rapidly if moisture content drops below 20%

c) Tolerate desiccation to low moisture levels and freezing temperatures for long-term storage

d) Only be propagated vegetatively

40. In pureline selection, the resulting new variety is derived from the progeny of:

a) A cross between two different species

b) Multiple heterozygous plants bulked together

c) A randomly mating population

d) A single homozygous, self-pollinated plant

41. A rice farmer observes that the central shoot of a rice seedling has turned brown and dried up, while the outer leaves remain green. This symptom, called 'deadheart', is primarily caused by the feeding of:

a) Green leafhopper

b) Brown planthopper

c) Rice stem borer

d) Rice bug

42. Rice tungro disease is one of the most destructive viral diseases of rice in Southeast Asia. It is primarily transmitted by which insect vector?

a) Brown planthopper (Nilaparvata lugens)

b) Green leafhopper (Nephotettix virescens)

c) Rice whorl maggot (Hydrellia philippina)

d) Whitebacked planthopper (Sogatella furcifera)

43. 'Straighthead' in rice is a condition where the panicles remain upright because they fail to set grain. It is generally recognized as a physiological disorder caused by:

a) Continuous flooding and highly reduced soil conditions, sometimes linked to arsenic

b) A soil-borne fungal pathogen attacking the roots

c) Severe nitrogen deficiency during the booting stage

d) High-temperature stress during anthesis

44. Rice blast is a devastating fungal disease capable of attacking all above-ground parts of the rice plant. What is its causal agent?

a) Xanthomonas oryzae pv. oryzae

b) Rhizoctonia solani

c) Ustilaginoidea virens

d) Magnaporthe oryzae (Pyricularia oryzae)

45. The Golden Apple Snail (Pomacea canaliculata) is a major invasive pest in wetland rice. At which crop growth stage does it cause the most severe economic damage?

a) Seedling stage (shortly after transplanting or direct seeding)

b) Maximum tillering stage

c) Booting and heading stage

d) Dough stage of the grain

46. A bacterial disease in rice characterized by water-soaked to yellowish stripes on leaf blades, which later turn wavy and white or greyish, is Bacterial Leaf Blight. Its pathogen is:

a) Pseudomonas syringae

b) Xanthomonas oryzae pv. oryzae

c) Erwinia carotovora

d) Ralstonia solanacearum

47. The Fall Armyworm (Spodoptera frugiperda) is a highly destructive, migratory pest that has recently become a severe threat in the Philippines and globally. Which crop is its most preferred host?

a) Cassava

b) Mungbean

c) Maize (Corn)

d) Sweet potato

48. A farmer brings a diseased cabbage head that is rotting, mushy, and emitting a very foul odor. These symptoms are highly characteristic of:

a) Powdery mildew

b) Fusarium wilt

c) Root knot nematode infestation

d) Bacterial soft rot

49. Blossom end rot is a common physiological disorder in tomatoes and peppers, manifesting as a dark, sunken, leathery patch at the base of the fruit. This is primarily caused by a localized deficiency in:

a) Calcium

b) Potassium

c) Boron

d) Magnesium

50. Integrated Pest Management (IPM) is the core framework for modern crop protection. Which of the following best describes the fundamental principle of IPM?

a) Eradicating all pest populations completely from the agricultural ecosystem

b) Keeping pest populations below the economic injury level using a combination of methods

c) Relying exclusively on biological control agents

d) Applying chemical pesticides preventatively on a fixed calendar schedule

Answer Key

1. B
2. C
3. A
4. B
5. B
6. C
7. D
8. A
9. D
10. C
11. A
12. B
13. C
14. A
15. B
16. C
17. D
18. A
19. B
20. C
21. B
22. D
23. A
24. C
25. B
26. D
27. A
28. C
29. B
30. A
31. B
32. D
33. A
34. C
35. B
36. D
37. A
38. B
39. C
40. D
41. C
42. B
43. A
44. D
45. A
46. B
47. C
48. D
49. A
50. B