1. Layers of soil that make up a soil profile are called
    a. Horizons
    b. Plates
    c. Films
    d. Sheets
2. The amount of dry matter produced per unit area is called the
    a. Economic yield
    b. Biological yield
    c. Harvest index
    d. Biomass
3. The amount of the part of the plant of usable marketable value is called the
    a. Economic yield
    b. Biological yield
    c. Harvest index
    d. Biomass
4. The quantity of live organic matter in a given area at a given point in time is called the
    a. Economic yield
    b. Biological yield
    c. Harvest index
    d. Biomass
5. The proportion of the crop that is of economic importance is called the
    a. Economic yield
    b. Biological yield
    c. Harvest index
    d. Biomass
6. Plants uptake water through the
    a. Leaves
    b. Stem
    c. Roots
    d. Flowers
7. The plant-growing process that utilizes nutrients mixed with water and the plant roots are suspended in the liquid solution without the use of soil
    a. Hydroponics
    b. No-Till
    c. Conservation farming
    d. Strip planting
8. Soil particles that are 0.02 to 2 mm in diameter are called
    a. Silt
    b. Clay
    c. Loam
    d. Sand

9. Soil particles that are 0.002 to 0.02 mm in diameter are called
    a. Silt
    b. Clay
    c. Loam
    d. Sand
10. Soil particles that are smaller than 0.002 mm in diameter are called
    a. Silt
    b. Clay
    c. Loam
    d. Sand
11. The standard test weight per bushel for soybeans is
    a. 48 pounds
    b. 52 pounds
    c. 56 pounds
    d. 60 pounds
12. Prussic acid poisoning is a potential problem for livestock grazing which of the following forage crops?
    a. Sorghum stalks
    b. Tall fescue
    c. Alfalfa
    d. Winter wheat
13. Which of the following are non-parasitic plants?
    a. Dodders
    b. Witchweed
    c. Mustards
    d. Broomrapes
14. Which method of pest management uses one organism to manage the population of another organism?
    a. Biological Pest Management
    b. Cultural Pest Management
    c. Chemical Pest Management
    d. Mechanical Pest Management
15. Which method of pest management utilizes chemicals to manage plant pest populations?
    a. Biological Pest Management
    b. Cultural Pest Management
    c. Chemical Pest Management
    d. Mechanical Pest Management
16. Which method of pest management utilizes physical means such as traps, tillage, heat treatment, etc. to manage pest populations?
    a. Biological Pest Management
    b. Cultural Pest Management
    c. Chemical Pest Management

d. Mechanical Pest Management

17. Which method of pest management incorporates crop rotation, mulching, and/or cultivar selection in order to manage pest populations?
    a. Biological Pest Management
    b. Cultural Pest Management
    c. Chemical Pest Management
    d. Mechanical Pest Management
18. The stage of development of a plant when the plant reaches maximum dry weight is known as
    a. Harvest maturity
    b. Physiological maturity
    c. Storage maturity
    d. Economic maturity
19. When the product of interest is at peak quality and quantity and will provide maximum yield is known as
    a. Physiological maturity
    b. Storage maturity
    c. Economic maturity
    d. Harvest maturity
20. Cropland left idle and free of weeds for a period of time to restore productivity through accumulation of water, nutrients, or both is known as
    a. Mulched
    b. Seeded
    c. At field capacity
    d. Fallow
21. What is agronomy?
    a. The study of crop improvement
    b. The study of general agriculture
    c. The study of soil and crop management
    d. The study of the stars
22. On a plant stem, what is the space between two nodes called?
    a. Blade
    b. Internode
    c. Collar
    d. Spike
23. What is the name of the stalk that attaches a leaf to the stem of a broad-leafed plant?
    a. Petiole
    b. Internode
    c. Culm
    d. Sheath
24. To which category do the crops wheat, barley, oat, and rye belong?
    a. Small grains
    b. Root

c. Fiber
d. Oilseed

25. To which plant family does wheat belong?
    a. Asteraceae
    b. Poaceae
    c. Fabaceae
    d. Malvaceae
26. To which plant family does canola belong?
    a. Brassicaceae
    b. Poaceae
    c. Fabaceae
    d. Malvaceae
27. To which plant family does alfalfa belong?
    a. Brassicaceae
    b. Poaceae
    c. Fabaceae
    d. Malvaceae
28. To which plant family does peanut belong?
    a. Brassicaceae
    b. Poaceae
    c. Fabaceae
    d. Malvaceae
29. What is the scientific name of alfalfa?
    a. Medicago sativa
    b. Alfalfa
    c. Trefoil repens
    d. Zea mays
30. What is the scientific name for corn?
    a. Medicago sativa
    b. Triticum aestivum
    c. Zea mays
    d. Glycine max
31. What is the scientific name for soybean?
    a. Soja max
    b. Trifolium repense
    c. Glycine max
    d. Gossypium hirsutum
32. What is the scientific name for peanut?
    a. Medicago sativa
    b. Arachis hypogea
    c. Glycine max
    d. Triticum aestivum

33. What is the scientific name for cotton?
    a. Brassica napus
    b. Arachis hypogaea
    c. Gossypium hirsutum
    d. Zea mays
34. What is the scientific name of wheat?
    a. Triticum aestivum
    b. Zea mays
    c. Glycine max
    d. Brassica napus
35. Peanut production in the US increased rapidly during the early 1900s when the boll weevil caused serious damage to which crop?
    a. Potato
    b. Cotton
    c. Rice
    d. Tobacco
36. What is a microscopic, slender, round worm that lives in the soil?
    a. Nematode
    b. Virus
    c. Fungi
    d. Bacteria
37. What is reached when a pest infestation reaches the point where potential loss exceeds the cost of a chemical application?
    a. IPM
    b. Economic Threshold
    c. Spray Point
    d. Danger
38. What is the most common beneficial insect species associated with crop production?
    a. Lady beetle
    b. Parasitic wasp
    c. Praying mantis
    d. Walking sticks
39. On which plant part do aphids feed?
    a. Flowers
    b. Leaves
    c. Phloem sap
    d. Roots
40. The waste produced by aphids is known as_____.
    a. Honeydew
    b. Sooty mold
    c. Frass
    d. Guano

41. The wheat curl mite is a vector for which wheat disease?
    a. Barley yellow dwarf
    b. Wheat streak mosaic virus
    c. Loose smut
    d. Tan spot
42. What is the localized death of leaf tissue termed?
    a. Chlorosis
    b. Firing
    c. Rusting
    d. Necrosis
43. Which organism causes most plant diseases?
    a. Bacteria
    b. Fungi
    c. Nematodes
    d. Virus
44. Which of the following can be detected on a crop when exposed to a black light?
    a. Leaf blight
    b. Aflatoxin
    c. Cyst nematodes
    d. All of these
45. Which grass species is a cool season, annual and is classified as a restricted noxious weed?
    a. Common lambsquarters
    b. Johnsongrass
    c. Cheat
    d. Wild mustard
46. Bacteria from which genera form associations with legumes, to give the ability to make use of atmospheric nitrogen?
    a. Bacillus
    b. Rhizobium
    c. Nitrosomonas
    d. Aspergillus
47. Which of the following describe the process of inoculation?
    a. Applying bacteria that fix nitrogen
    b. Applying bacteria that raise soil pH
    c. Removing nitrogen fertilizer

d. Applying nitrogen fertilizer

48. How can you determine if nitrogen-fixing bacteria have infected your legume crop?
    a. Internodes are present
    b. Nodes are present
    c. Nodules are present
    d. Root hairs are present

49. Soybeans have associations with bacteria to form nodules on the soybean roots. Which specific bacteria fixes N for soybeans?
    a. Bradyrhizobium japonicum
    b. Bradyrhizobium betae
    c. Bradyrhizobium canariense
    d. Bradyrhizobium tropiciagri

50. Which of the following terms describes an herbicide application that is made after planting and before crops and weeds emerge?
    a. Pre-emergence
    b. Post-emergence
    c. Pre-plant
    d. Lay by

51. Which of the following determines the rate of pesticide that is applied per acre?
    a. Effective spray width per nozzle
    b. Ground speed of the sprayer
    c. Nozzle flow rate
    d. All of the above

52. Which of the following types of sprayer nozzles allows for the penetration of the plant canopy and covers the underside of the leaves?
    a. Flat fan
    b. Hollow core
    c. Jet band
    d. Air injection

53. Where will a deficiency of any "primary macronutrients" first appear?
    a. Lower leaves

b. Roots
c. Petioles
d. Upper leaves

54. What is the first visual symptom of a plant suffering from a deficiency of nitrogen?
a. Chlorosis
b. Dampening-off
c. Wilting
d. Rickets

55. What does the term "chlorosis" mean?
a. Yellowing of the leaves
b. Wilting of the leaves
c. Wilting of the blooms
d. Cupping of the leaves

56. Which of the following is a visual sign associated with phosphorus deficiency?
a. Curling leaves
b. Purple leaves
c. Striped yellow leaves
d. Yellow leaves

57. Nitrogen, phosphorus, and potassium are referred to as what type of plant nutrients?
a. Primary
b. Secondary
c. Micro
d. Tertiary

58. Calcium, magnesium, and sulfur are referred to as what type of plant nutrients?
a. Essential
b. Micro
c. Primary
d. Secondary

59. On a world-wide basis, what is the most limiting nutrient element for plant growth?
a. Nitrogen
b. Phosphorus
c. Potassium
d. Sunlight

60. Which primary plant nutrient promotes rapid vegetative growth?
a. Nitrogen
b. Phosphorus
c. Iodine
d. Potassium

61. What is the function of phosphorus in a plant?
a. Increasing crop quality
b. Reduces lodging
c. Energy transfer

d. All of these

62. What is the symbol for the element responsible for improving stem strength?
    a. Mo
    b. Fe
    c. K
    d. Zn

63. Alfalfa uses large amounts of which element?
    a. Potassium
    b. Magnesium
    c. Chloride
    d. Sulfur

64. Peanut requires large amounts of which element?
    a. Calcium
    b. Iron
    c. Zinc
    d. Aluminum

65. If you wanted to add Calcium to your soil without adjusting the soil pH which source would you select?
    a. Agricultural Lime
    b. Hydrated Lime
    c. Gypsum
    d. Calcite

66. Which of the following agricultural amendments should be used if magnesium is also needed in the soil?
    a. Dolomite
    b. Potash
    c. Calcite
    d. Gypsum

67. When should a crop producer place the seed in direct contact with the fertilizer?
    a. Only if using a fertilizer with a low salt concentration
    b. When the soil is very cold
    c. When the soil is very hot
    d. If using urea

68. What should a crop producer do to determine how much fertilizer to apply to a field?
    a. Texture the soil
    b. Sample the air nutrient content
    c. Test the fertilizer nutrient content
    d. Test the soil nutrient content

69. Select the correct order for most to least sensitive crops to injury from fertilizer burn.
    a. Sorghum > soybean > small grains > corn
    b. Soybeans > sorghum > corn > small grains
    c. Corn > small grains > sorghum > soybeans

d. Small grains > corn > sorghum > soybeans

70. Which of the following does not impact how much fertilizer can safely be applied with the seed.
    a. Crop
    b. Fertilizer source
    c. Soil environment
    d. Seed size

71. Hydrated Lime and Burnt Lime are not typically used as often due to which problematic attribute?
    a. They are both caustic to skin
    b. They do not impact soil pH
    c. They are always too coarse
    d. They cause the soil to darken in color

72. What is likely to occur when too much fertilizer is applied to a field?
    a. Crop toxicity
    b. Increased crop yield
    c. Increased crop vigor
    d. Faster plant maturity

73. What is the minimum percentage of plant food in a fertilizer referred to as?
    a. Ratio
    b. Quality
    c. Guaranteed analysis
    d. Grade

74. Which of the following is an example of an organic fertilizer?
    a. Dolomite
    b. Poultry litter
    c. Sodium nitrate
    d. Urea

75. What is vegetation that is produced with the intent of plowing it into the soil to improve the organic matter content termed?
    a. Green manure
    b. Humus
    c. Fodder
    d. Stubble

76. How is the quality of an agricultural lime material measured?
    a. Guaranteed analysis
    b. County extension office
    c. Cation exchange capacity
    d. Effective calcium carbonate equivalent

77. What is the application of fertilizers, herbicides, and/or insecticides through irrigation systems called?
    a. Fertilization
    b. Fertigation
    c. Irrigation
    d. Pestigation
78. You are going to divide your yearly application of fertilizer into two or more applications. What is the term for this type of application?
    a. Split application
    b. Banding
    c. Broadcasting
    d. Starter
79. What is the process of spreading fertilizer uniformly over the soil's surface called?
    a. Banding
    b. Broadcasting
    c. Foliar application
    d. Top dressing
80. What is applying fertilizer a little deeper and to the side of where the seeds are planted termed?
    a. Banding
    b. Side dressing
    c. Split application
    d. Top dressing
81. Where does the manufacturer get nitrogen from to produce anhydrous ammonia?
    a. Rocks high in nitrogen
    b. The atmosphere
    c. Organic matter
    d. None of these
82. Fertilizer materials marketed in the US are given a guaranteed analysis such as 13-13-13. What does the first number represent?
    a. Nitrogen
    b. Sulfur
    c. Phosphorus
    d. Potassium
83. What is the guaranteed analysis for urea?
    a. 35-0-0
    b. 46-0-0
    c. 82-0-0
    d. 21-0-0
84. What is the guaranteed analysis for diammonium phosphate?
    a. 18-46-0

b. 11-52-0
c. 0-48-0
d. 0-0-60

85. What is the ideal soil pH for most nutrients?
a. 5.0-6.0
b. 7.0-9.0
c. 6.5-7.5
d. 4.0-5.0

86. Which of the following soils would require the least initial amount of agricultural lime to increase the soil pH?
a. Loam
b. Clay Loam
c. Silt Loam
d. Loamy Sand

87. Which of the following irrigation systems loses the least amount of water to evaporation?
a. Center Pivot
b. Flood
c. Drip Irrigation
d. Furrow Irrigation

88. Peanuts grow best in which soil texture?
a. Sandy Loam
b. Clay
c. Silty Clay
d. Sandy Clay

89. How many soil cores should a farmer obtain to create an adequate soil sample from each management zone in a 160 field?
a. 5-7 cores
b. 20-40 cores
c. 1-5 cores
d. 15-20 cores

90. During which of the following stages of crop development is water availability most important?
a. Flowering
b. Maturity
c. Vegetative growth
d. All of these

91. Which of the following is a primary tillage activity?
a. Moldboard Plow
b. Spike Tooth Harrow
c. Rolling Basket
d. Field Cultivator

92. Which of the following is a secondary tillage activity?
a. Moldboard Plow
b. Chisel Plow
c. Field Cultivator
d. Sweep Plow

93. Which type of root system does wheat have?
    a. Creeping
    b. Fibrous
    c. Tap
    d. Rhizome
94. What type of root system does cotton have?
    a. Tap
    b. Fibrous
    c. Rhizome
    d. Crownal
95. Which scientist researched and developed over 300 uses for peanut?
    a. Gregor Mendel
    b. Booker T. Washington
    c. George Washington Carver
    d. Norman Borlaug
96. Who is recognized as the "Father" of the nitrogen fertilizer industry?
    a. John Laws
    b. Fritz Haber
    c. Justus von Liebig
    d. Jethro Tull
97. Which scientist greatly increased wheat production and is called the "Father of the Green Revolution"?
    a. George Washington Carver
    b. Norman Borlaug
    c. Gregor Mendel
    d. Booker T. Washington
98. What information can be accessed from the Mesonet?
    a. Soil Moisture
    b. Soil Temperature
    c. Air Temperature
    d. All of the above
99. What is the standard weight (lbs) of a bushel of corn?
    a. 50
    b. 56
    c. 60
    d. 65

100. What is the standard weight (lbs) of a bushel of wheat?
    a. 50
    b. 56
    c. 60
    d. 65
101. What is the standard weight (lbs) of a bushel of canola?
    a. 50
    b. 55
    c. 60
    d. 65
102. What is the standard weight (lbs) of a bushel of sorghum?
    a. 56
    b. 50
    c. 60
    d. 65
103. What is the standard weight (lbs) of a bushel of soybean?
    a. 56
    b. 50
    c. 60
    d. 65
104. What is the standard weight (lbs) of a bushel of rye?
    a. 60
    b. 65
    c. 45
    d. 56
105. Canola has epigeal emergence. How does that affect canola's tolerance to frost/freeze damage relative to wheat?
    a. Canola is less susceptible
    b. Canola is more susceptible
    c. Canola is not susceptible
    d. There is no difference
106. Which of the following is an advantage of rotating peanuts with a non-legume crop?
    a. Fewer problems with plant diseases
    b. Fewer problems with insect pests
    c. Fewer problems with weeds
    d. All of these
107. Which of the following is an advantage of growing peanut on soil that has a high sand content?
    a. Easy harvest
    b. Less weed competition
    c. Less nutrient holding capacity
    d. More water holding capacity

108. What is the term given to harvested peanut pods that are empty?
    a. Duds
    b. Blanks
    c. Pops
    d. Shells
109. How is alfalfa used?
    a. Hay
    b. Green Chop
    c. Silage
    d. Any of these
110. After an alfalfa field has outlived its productive life, what is the minimum recommended time that needs to pass before replanting the field to alfalfa again?
    a. One year
    b. Two years
    c. Four years
    d. Eight years
111. Which plant structure is most important to identify wheat from rye, barley, and triticale which in the vegetative stage?
    a. Blade
    b. Leaf sheath
    c. Auricle
    d. Ligule
112. Most of the wheat produced for grain is destined to be made into flour. What is hard red winter wheat flour best suited for making?
    a. Cookies
    b. Breads
    c. Pastas
    d. Tortillas

113. What is "Feekes Scale" used for?
    a. Calculate the value of a farmer's truck load of wheat
    b. Describe the growth stages of wheat
    c. Establish the official weight of a bushel of wheat
    d. Determine when it is time to plant wheat
114. Which of the following crops is a farmer likely to consider as a possibility if he/she desires to "double crop" his/her wheat?
    a. Barley
    b. Soybeans
    c. Winter Canola
    d. Oats
115. To facilitate mechanical harvesting of small grains the plant should be standing upright. What term describes a situation when the stems of wheat plants, and other small grains, bend over due to weakness of the stem and/or the weight of the seed head?
    a. Nodding
    b. Weeping
    c. Lodging
    d. Drooping
116. Which of the following is true of indeterminate plants?
    a. All of the seeds take multiple growing seasons to mature
    b. The seeds never mature
    c. The seeds mature at different times
    d. All of the seeds mature at the same time

117. Which term describes the process of exposing a plant to a cold period to cause a change from vegetative growth to reproductive growth?

a. Chilling
b. Vernalization
c. Scarification
d. Stratification

118. Which term refers to the ability of seeds to begin growing when placed in a favorable environment?

a. Viability
b. Scarification
c. Pollination
d. Germination

Germination is the correct answer here, viability is just whether a seed is "alive", but germination is the ability to begin growing into a plant.

119. Peanut pods are produced from which plant part?

a. Flowers
b. Leaves
c. Roots
d. Stems

120. What is the seed part that supplies energy to the seedling until the seedling is able to produce sufficient energy through photosynthesis?

a. Embryo
b. Cotyledon
c. Radicle
d. Testa

121. What is the seed structure that protects a grass seedling during emergence called?

a. Flag leaf
b. Coleoptile
c. Peduncle
d. Radicle