

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
- Silt
 - Clay
 - Loam
 - Sand
10. Soil particles that are smaller than 0.002 mm in diameter are called
- Silt
 - Clay
 - Loam
 - Sand
11. The standard test weight per bushel for soybeans is
- 48 pounds
 - 52 pounds
 - 56 pounds
 - 60 pounds
12. Prussic acid poisoning is a potential problem for livestock grazing which of the following forage crops?
- Sorghum stalks
 - Tall fescue
 - Alfalfa
 - Winter wheat
13. Which of the following are non-parasitic plants?
- Dodders
 - Witchweed
 - Mustards
 - Broomrapes
14. Which method of pest management uses one organism to manage the population of another organism?
- Biological Pest Management
 - Cultural Pest Management
 - Chemical Pest Management
 - Mechanical Pest Management
15. Which method of pest management utilizes chemicals to manage plant pest populations?
- Biological Pest Management
 - Cultural Pest Management
 - Chemical Pest Management
 - Mechanical Pest Management
16. Which method of pest management utilizes physical means such as traps, tillage, heat treatment, etc. to manage pest populations?
- Biological Pest Management
 - Cultural Pest Management
 - 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?
- Barley yellow dwarf
 - Wheat streak mosaic virus
 - Loose smut
 - Tan spot
42. Barley yellow dwarf virus impacts wheat in Oklahoma and is spread by many aphids. The two most common aphids that spread barley yellow dwarf virus in Oklahoma are _____ and _____
- Bird-cherry oat aphid and peach aphid
 - Peach aphid and greenbug
 - Bird-cherry oat aphid and greenbug
 - Cabbage aphid and greenbug
43. What is the localized death of leaf tissue termed?
- Chlorosis
 - Firing
 - Rusting
 - Necrosis
44. Which organism causes most plant diseases?
- Bacteria
 - Fungi
 - Nematodes
 - Virus
45. Which of the following can be detected on a crop when exposed to a black light?
- Leaf blight
 - Aflatoxin
 - Cyst nematodes
 - All of these
46. Which grass species is a cool season, annual and is classified as a restricted noxious weed?
- Common lambsquarters
 - Johnsongrass
 - Cheat
 - Wild mustard
47. Bacteria from which genera form associations with legumes, to give the ability to make use of atmospheric nitrogen?
- Bacillus
 - Rhizobium
 - Nitrosomonas
 - Aspergillus
48. Which of the following describe the process of inoculation?
- Applying bacteria that fix nitrogen
 - Applying bacteria that raise soil pH
 - Removing nitrogen fertilizer

- d. Applying nitrogen fertilizer
49. How can you determine if nitrogen-fixing bacteria have infected your legume crop?
- Internodes are present
 - Nodes are present
 - Nodules are present
 - Root hairs are present
50. Oklahoma is the number one state for production in the USA for which crop below?
- Green Mungbean
 - Corn
 - Wheat
 - Cotton
51. Soybeans have associations with bacteria to form nodules on the soybean roots. Which specific bacteria fixes N for soybeans?
- Bradyrhizobium japonicum
 - Bradyrhizobium betae
 - Bradyrhizobium canariense
 - Bradyrhizobium tropiciagri
52. This pest has caused a lot of problems for sorghum production in Oklahoma and surrounding states in the late 2010s into the 2020s.
- Peach aphid
 - Sugarcane aphid
 - Two-spotted spider mite
 - Red-banded stinkbug
53. Which of the following terms describes an herbicide application that is made after planting and before crops and weeds emerge?
- Pre-emergence
 - Post-emergence
 - Pre-plant
 - Lay by
54. Which of the following determines the rate of pesticide that is applied per acre?
- Effective spray width per nozzle
 - Ground speed of the sprayer
 - Nozzle flow rate
 - All of the above
55. Which of the following types of sprayer nozzles allows for the penetration of the plant canopy and covers the underside of the leaves?
- Flat fan
 - Hollow core
 - Jet band
 - Air injection
56. Where will a deficiency of any "primary macronutrients" first appear?
- Lower leaves

- b. Roots
 - c. Petioles
 - d. Upper leaves
57. What is the first visual symptom of a plant suffering from a deficiency of nitrogen?
- a. Chlorosis
 - b. Dampening-off
 - c. Wilting
 - d. Rickets
58. 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
59. 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
60. Nitrogen, phosphorus, and potassium are referred to as what type of plant nutrients?
- a. Primary
 - b. Secondary
 - c. Micro
 - d. Tertiary
61. Calcium, magnesium, and sulfur are referred to as what type of plant nutrients?
- a. Essential
 - b. Micro
 - c. Primary
 - d. Secondary
62. On a world-wide basis, what is the most limiting nutrient element for plant growth?
- a. Nitrogen
 - b. Phosphorus
 - c. Potassium
 - d. Sunlight
63. Which primary plant nutrient promotes rapid vegetative growth?
- a. Nitrogen
 - b. Phosphorus
 - c. Iodine
 - d. Potassium
64. What is the function of phosphorus in a plant?
- a. Increasing crop quality
 - b. Reduces lodging
 - c. Energy transfer

- d. All of these
65. What is the symbol for the element responsible for improving stem strength?
- Mo
 - Fe
 - K
 - Zn
66. Alfalfa uses large amounts of which element?
- Potassium
 - Magnesium
 - Chloride
 - Sulfur
67. Peanut requires large amounts of which element?
- Calcium
 - Iron
 - Zinc
 - Aluminum
68. If you wanted to add Calcium to your soil without adjusting the soil pH which source would you select?
- Agricultural Lime
 - Hydrated Lime
 - Gypsum
 - Calcite
69. Which of the following agricultural amendments should be used if magnesium is also needed in the soil?
- Dolomite
 - Potash
 - Calcite
 - Gypsum
70. When should a crop producer place the seed in direct contact with the fertilizer?
- Only if using a fertilizer with a low salt concentration
 - When the soil is very cold
 - When the soil is very hot
 - If using urea
71. What should a crop producer do to determine how much fertilizer to apply to a field?
- Texture the soil
 - Sample the air nutrient content
 - Test the fertilizer nutrient content
 - Test the soil nutrient content
72. Select the correct order for most to least sensitive crops to injury from fertilizer burn.
- Sorghum > soybean > small grains > corn
 - Soybeans > sorghum > corn > small grains
 - Corn > small grains > sorghum > soybeans

- d. Small grains > corn > sorghum > soybeans
73. 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
74. 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
75. 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
76. What is the minimum percentage of plant food in a fertilizer referred to as?
- a. Ratio
 - b. Quality
 - c. Guaranteed analysis
 - d. Grade
77. Which of the following is an example of an organic fertilizer?
- a. Dolomite
 - b. Poultry litter
 - c. Sodium nitrate
 - d. Urea
78. 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
79. 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

80. What is the application of fertilizers, herbicides, and/or insecticides through irrigation systems called?

- a. Fertilization
- b. Fertigation
- c. Irrigation
- d. Pestigation

81. 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

82. What is the process of spreading fertilizer uniformly over the soil's surface called?

- a. Banding
- b. Broadcasting
- c. Foliar application
- d. Top dressing

83. 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

84. 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

85. 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

86. What is the guaranteed analysis for urea?

- a. 35-0-0
- b. 46-0-0
- c. 82-0-0
- d. 21-0-0

87. What is the guaranteed analysis for diammonium phosphate?

- a. 18-46-0

- b. 11-52-0
 - c. 0-48-0
 - d. 0-0-60
88. 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
89. 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
90. 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
91. Peanuts grow best in which soil texture?
- a. Sandy Loam
 - b. Clay
 - c. Silty Clay
 - d. Sandy Clay
92. 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
93. On a world wide basis, what is the most limiting nutrient for plant growth?
- a. Nitrogen
 - b. Boron
 - c. Phosphorus
 - d. Potassium
94. 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
95. What two regions comprise the majority of corn acres grown in Oklahoma?
- a. Southwest and Southeast

- b. Panhandle and Southwest
 - c. Panhandle and Eastern**
 - d. Central and Southeast
96. Where have/are most peanuts grown in the state of Oklahoma?
- a. Eastern
 - b. Southwestern**
 - c. Northeastern
 - d. Panhandle
97. Which two soybean maturity groups are most commonly grown in Oklahoma?
- a. IV and V**
 - b. 00 and 0
 - c. II and III
 - d. VII and VIII
98. Which of the following is a primary tillage activity?
- a. Moldboard Plow**
 - b. Spike Tooth Harrow
 - c. Rolling Basket
 - d. Field Cultivator
99. Which of the following is a secondary tillage activity?
- a. Moldboard Plow
 - b. Chisel Plow
 - c. Field Cultivator**
 - d. Sweep Plow
100. During which month should dual-purpose wheat be planted in Oklahoma?
- a. September**
 - b. December
 - c. January
 - d. March
101. During which month should sorghum be planted in Oklahoma?
- a. April**
 - b. August
 - c. Early March
 - d. February
102. Which of the following is grown as a perennial crop in Oklahoma?
- a. Canola
 - b. Sesame
 - c. Alfalfa**
 - d. Soybean
103. Which of the following is grown as a winter annual crop in Oklahoma?
- a. Corn
 - b. Soybean
 - c. Canola**

- d. Sesame
104. Which of the following is grown as a summer annual crop in Oklahoma?
- a. Alfalfa
 - b. Corn**
 - c. Wheat
 - d. Canola
105. Which type of root system does wheat have?
- a. Creeping
 - b. Fibrous**
 - c. Tap
 - d. Rhizome
106. What type of root system does cotton have?
- a. Tap**
 - b. Fibrous
 - c. Rhizome
 - d. Crownal
107. Which scientist researched and developed over 300 uses for peanut?
- a. Gregor Mendel
 - b. Booker T. Washington
 - c. George Washington Carver**
 - d. Norman Borlaug
108. Who is recognized as the “Father” of the nitrogen fertilizer industry?
- a. John Laws
 - b. Fritz Haber**
 - c. Justus von Liebig
 - d. Jethro Tull
109. 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
110. What information can be accessed from the Mesonet?
- a. Soil Moisture
 - b. Soil Temperature
 - c. Air Temperature
 - d. All of the above**
111. What is the standard weight (lbs) of a bushel of corn?
- a. 50
 - b. 56**
 - c. 60
 - d. 65

112. What is the standard weight (lbs) of a bushel of wheat?
- a. 50
 - b. 56
 - c. 60**
 - d. 65
113. What is the standard weight (lbs) of a bushel of canola?
- a. 50**
 - b. 55
 - c. 60
 - d. 65
114. What is the standard weight (lbs) of a bushel of sorghum?
- a. 56**
 - b. 50
 - c. 60
 - d. 65
115. What is the standard weight (lbs) of a bushel of soybean?
- a. 56
 - b. 50
 - c. 60**
 - d. 65
116. What is the standard weight (lbs) of a bushel of rye?
- a. 60
 - b. 65
 - c. 45
 - d. 56**
117. 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
118. 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**
119. 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

120. What is the term given to harvested peanut pods that are empty?
- Duds
 - Blanks
 - Pops**
 - Shells
121. How is alfalfa used?
- Hay
 - Green Chop
 - Silage
 - Any of these**
122. 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?
- One year**
 - Two years
 - Four years
 - Eight years
123. Approximately how long can a pure stand of alfalfa be expected to persist in Oklahoma?
- 6 months
 - 3 years
 - 6 years**
 - 20 years
124. Which of the following is the primary market type of peanut produced in Oklahoma?
- Virginia
 - Runner
 - Spanish**
 - Valencia
125. Which class of wheat is most commonly grown by Oklahoma farmers?
- Hard red spring wheat
 - Hard white wheat
 - Soft red winter wheat
 - Hard red winter wheat**
126. Which plant structure is most important to identify wheat from rye, barley, and triticale which in the vegetative stage?
- Blade
 - Leaf sheath
 - Auricle**
 - Ligule
127. 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?
- Cookies
 - Breads**
 - Pastas
 - Tortillas
128. What is "Feekes Scale" used for?
- Calculate the value of a farmer's truck load of wheat
 - Describe the growth stages of wheat**
 - Establish the official weight of a bushel of wheat

- d. Determine when it is time to plant wheat
129. Which of the following crops is a farmer likely to consider as a possibility if he/she desires to “double crop” his/her wheat?
- Barley
 - Soybeans
 - Winter Canola
 - Oats
130. 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?
- Nodding
 - Weeping
 - Lodging
 - Drooping
131. Which of the following is true of indeterminate plants?
- All of the seeds take multiple growing seasons to mature
 - The seeds never mature
 - The seeds mature at different times
 - All of the seeds mature at the same time
132. Which term describes the process of exposing a plant to a cold period to cause a change from vegetative growth to reproductive growth?
- Chilling
 - Vernalization
 - Scarification
 - Stratification
133. Which term refers to the ability of seeds to begin growing when placed in a favorable environment?
- Viability
 - Scarification
 - Pollination
 - 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.
134. Peanut pods are produced from which plant part?
- Flowers
 - Leaves
 - Roots
 - Stems
135. What is the seed part that supplies energy to the seedling until the seedling is able to produce sufficient energy through photosynthesis?
- Embryo
 - Cotyledon
 - Radicle
 - Testa
136. What is the seed structure that protects a grass seedling during emergence called?
- Flag leaf
 - Coleoptile
 - Peduncle
 - Radicle

Example Calculations. Answers should be rounded to the nearest tenth unless otherwise instructed

1. You have a field that is 0.5 mile long and 0.3 mile wide. What is the area of your field in acres?

$$0.5 * 0.3 * 5280 * 5280 \div 43560 = 96 \text{ acres}$$

2. You want to plant winter wheat on a 90-acre field. Your planting rate will be 1.5 bushel per acre. How many 50-pound bags of wheat will you need to purchase? (You should assume 1 bushel weighs 60 pounds.)

$$90 * 1.5 * 60 \div 50 = 162 \text{ bags}$$

3. Calculate the percent pure live seed of wheat seed that has 92% germination and 94% purity.

$$.92 * .94 = .8648 = 86.5\%$$

4. How many pounds of urea do you need to apply per acre to add 60 pounds of nitrogen per acre?

$$60 \div .46 = 130.4 \text{ pounds}$$

5. How many pounds of phosphorus per acre will you add to the soil if you apply 40 pounds of diammonium phosphate per acre?

$$40 * .46 = 18.4 \text{ pounds}$$

6. You need to apply 40 pounds of monoammonium phosphate per acre to a 120-acre field. How many times will you need to fill your 2-ton fertilizer cart? (1 ton = 2000 pounds)

$$120 * 40 \div 4000 = 1.2 = (2 \text{ times})$$

7. You want to apply the herbicide Sencor to your wheat field to control cheat. Sencor should be applied at a rate of 4 ounces per acre. How many pounds of Sencor will be required to treat 250 acres?

$$250 * 4 \div 16 = 62.5 \text{ pounds}$$

8. You want to apply atrazine to your grain sorghum at a rate of 2.0 pounds per acre. Atrazine is the active ingredient in the herbicide Aatrex, which contains 4 pounds of atrazine per gallon. How many gallons of Aatrex should you purchase to treat 45 acres?

$$45 * 2 \div 4 = 22.5 \text{ gallons}$$

9. You decide it's time to treat your winter canola field to control insects. You decide to use the insecticide Karate Z. This product is applied at a rate of 0.03 pounds of active ingredient (lambda cyhalothrin) per acre. If Karate Z contains 22.8% active ingredient, how many pounds of Karate Z should you apply per acre?

0.03 pounds a.i.	1 lb Karate Z	= 0.13 lbs of Karate Z
acre	0.228 lbs a.i.	

$$(0.03 \text{ lb}) / 0.228 = 0.13$$

10. You want to apply the fungicide Bravo WeatherStik at a rate of 2 pints per acre to control leaf spot in your 65-acre peanut field. How much will it cost (rounded to the nearest cent) to purchase Bravo WeatherStik for this field, if the fungicide costs \$5.75 per pint?

$$65 * 2 * 5.75 = \$747.50$$

11. You have constructed a grain bin so you can store wheat on your farm at harvest. The bin has a 30-foot diameter and sides 35 feet tall. If you fill the bin to the top of the sides, how many bushels will you be able to store in the bin?

$$3.14 * 15^2 * 35 \div 1.2 = 20,606.3 \text{ bushels (20,616.7 if more digits of pi are used)}$$

12. Your wheat harvest from a 90-acre field is 3,948 bushels. What is your average yield in bushels per acre?

$$3948 \div 90 = 43.9 \text{ bushels per acre}$$

Common Conversion Factors

1 foot = 12 inches

1 mile = 5280 feet

1 acre = 43,560 square feet

1 pound = 16 ounces

1 cup = 8 fluid ounces

1 pint = 2 cups

1 quart = 2 pints

1 gallon = 4 quarts

1 bushel = 1.2 cubic feet