

1. Generally which nutrient deficiency causes leaf margins to turn yellow?
  - a.) phosphorus
  - b.) iron
  - c.) **potassium**
  - d.) sulfur
  
2. Farmer Bison wants to apply a total of 300 pounds of nitrogen per acre on his corn field. He has spread 10 tons per acre of dry manure with an average analysis of 17 pounds of nitrogen per ton. How many additional pounds of nitrogen must he apply?
  - a.) 100
  - b.) **130**
  - c.) 283
  - d.) None. He has applied enough already.
  
3. How many acres are there in a rectangular parcel of land that measures 800 feet long and 520 feet wide?
  - a.) **9.6**
  - b.) 20
  - c.) 4160
  - d.) 1.8
  
4. Looking at an Atrazine 4F label, what does the F stand for?
  - a.) fine mixed
  - b.) **flowable**
  - c.) first added
  - d.) a strength rating
  
5. The vascular tissue in a crop plant that conducts water is...
  - a.) phloem
  - b.) **xylem**
  - c.) parenchyma
  - d.) none of the above
  
6. The smallest particle in soil is?
  - a.) sand
  - b.) silt
  - c.) **clay**
  - d.) all of the above
  
7. Anhydrous ammonia contains approximately 82% nitrogen. You want to apply 190 pounds of nitrogen per acre on 235 acres of sorghum. If anhydrous is \$300 per ton, how much will it cost you to apply the desired level of nitrogen?
  - a.) \$6697
  - b.) \$5492
  - c.) **\$8168**
  - d.) \$6714
  
8. Which of the following nutrients is most mobile in the plant?
  - a.) **nitrogen**
  - b.) phosphorus
  - c.) calcium
  - d.) magnesium
  
9. High salts in soil can create damage due to...
  - a.) Direct damage to roots
  - b.) **Damage to roots in the absence of water**
  - c.) Damage to roots in the presence of water
  - d.) Salts do not damage crops

10. What part of the plant cell contains chlorophyll?  
a.) mitochondria  
b.) nucleus  
c.) chloroplasts  
d.) cell wall
11. The plant process of turning water and nutrients into sugar is called \_\_\_\_\_.  
a.) respiration  
b.) photosynthesis  
c.) denitrification  
d.) leaching
12. Which of the following soil types would have the greatest problem with leaching?  
a.) clay  
b.) silt  
c.) sand  
d.) all about the same
13. You are applying Prowl 3.3EC at a rate of 2 pints per acre using 20 gallons of water per acre of application. You are traveling at 4.5 MPH. The field size is 1000 ft. X 1089 ft. The nozzles are 20 inches apart. How much herbicide and water will you need to treat the field?  
a.) 6.25 gallons of Prowl and 500 gallons of water  
b.) 50 gallons of Prowl and 500 gallons of water  
c.) 10 gallons of Prowl and 200 gallons of water  
d.) 500 gallons of Prowl and 20 gallons of water
14. A bushel of corn at 15.5% moisture weighs 56 pounds. How much does a bushel of corn weigh at 17% moisture?  
a.) 51  
b.) 57.5  
c.) 61.4  
d.) 73
15. The endosperm is \_\_\_\_\_ to an emerging seed.  
a.) the starchy food source  
b.) the first root  
c.) protection for the plumule  
d.) the embryo
16. What is the single most important concept of pesticide application?  
a.) reading the label  
b.) personal protective equipment  
c.) sprayer calibration  
d.) cleaning out the spray tank
17. Which of the following statements appears on all pesticide labels?  
a.) poison  
b.) keep out of reach of children  
c.) may be harmful if swallowed  
d.) danger
18. A pesticide that can only be handled and applied by a certified applicator is called a \_\_\_\_\_ use pesticide.:  
a.) restricted  
b.) general  
c.) special  
d.) licensed

19. Peanut plants grow...
- a.) with pods forming from flowers above ground
  - b.) with pods forming at the end of pegs below ground
  - c.) with nodules forming on the roots that become nuts
  - d.) with pods in the axils of branches and petioles
20. Nematodes are...
- a.) Parasitic round worms
  - b.) fungi
  - c.) bacteria
  - d.) virus
21. Farmer Brian wants to plant his 125 acre corn field with a population of 32,000 plants per acre. The seed he will purchase has 80,000 kernels per bag. The germination rate is 99%. How many bags of seed does he need to purchase?
- a.) 51 bags
  - b.) 48 bags
  - c.) 94 bags
  - d.) 120 bags
22. The first true leaves on a soybean plant are \_\_\_\_\_.
- a.) cotyledons.
  - b.) unifoliate
  - c.) trifoliate
  - d.) parallel veined
23. How is a tobacco field planted?
- a.) seeded broadcast
  - b.) transplanted seedlings
  - c.) planted using a no-till drill
  - d.) planted using a conventional planter.
24. You have just harvested 120 tons of silage from 7.5 acres. The moisture of the silage is 65%. What is the dry matter yield per acre?
- a.) 16 tons per acre
  - b.) 10.4 tons per acre
  - c.) 5.6 tons per acre
  - d.) none of the above
25. You have a sand content of 31% and a silt content of 43%. How much clay is present in this soil sample?
- a.) 50%
  - b.) 26%
  - c.) 43%
  - d.) 10%
26. Which of the following soils types would have the most severe drainage problems?
- a.) sandy loams
  - b.) clays
  - c.) clay loams
  - d.) silty clay loams
27. In corn production, VT refers to...
- a.) emergence
  - b.) 3<sup>rd</sup> leaf collar fully emerged
  - c.) tassel emerged
  - d.) silking

28. In soybean growth staging, which of the following refers to full blooms?
- a.) R2
  - b.) R8
  - c.) VC
  - d.) V4
29. Which of the following soil types would have the highest Cation Exchange Capacity (CEC)?
- a.) sand
  - b.) sandy clay loam
  - c.) silt loam
  - d.) muck
30. The fruit of flax and cotton are referred to as \_\_\_\_\_.
- a.) bolls
  - b.) pods
  - c.) gourds
  - d.) sepals
31. Your tomatoes are planted in 30 inch rows. In 17 ft. 5 in. of row length you count 21 plants. What is your estimated plant population per acre?
- a.) 21,000
  - b.) 25,400
  - c.) 16,000
  - d.) 17,500
32. On what part of a plant does a wireworm feed?
- a.) foliage
  - b.) fruit
  - c.) flowers
  - d.) roots
33. The most important reason that cropland erodes faster than pasture or forest is...
- a.) Runoff is faster from cropland versus native vegetation
  - b.) Soil fertility is depleted by growing and harvesting crops
  - c.) The soil surface is exposed to more raindrops and wind
  - d.) Soil organic matter is reduced by growing most crops
34. Conservation tillage may be defined on the basis of the...
- a.) amount of crop residue remaining on the soil surface during critical periods
  - b.) total amount of any tillage operation
  - c.) crop yields attained
  - d.) predicted soil erosion rate
35. Crop yield goals should be based upon...
- a.) production history
  - b.) input level
  - c.) soil productivity
  - d.) all of the above
36. integrated pest management (IPM) refers to...
- a.) controlling multiple pest problems with one pesticide
  - b.) application of multiple pest control measures
  - c.) organic methods of pest control
  - d.) introducing new easily controlled pests to compete with previous hard to control pests
37. Weeds can be identified based on morphological traits such as ...
- a.) auricles and ligules
  - b.) plant tissue analysis
  - c.) hairiness and leaf shape
  - d.) both a and c

38. A 'transgenic' crop plant is any plant that...
- has been transported across wide geographic regions
  - has been backcrossed to a 'wild type' parent plant
  - has one or more foreign genes inserted via molecular techniques
  - is a cross between two closely related species
39. A pesticide is most likely to pollute ground water if it has which of the following characteristics?
- high volatility
  - high solubility
  - strongly absorbed to soil colloids
  - rapidly degraded by soil organisms.
40. Earliest planting date for a crop species is determined by...
- calendar date
  - crop variety
  - soil temperature
  - soil moisture
41. Depth of planting is primarily determined by...
- seed size
  - soil moisture
  - crop variety
  - soil structure
42. To stimulate a 'short day' plant to flower, the plant must be...
- exposed to a sequence of short days prior to an exposure to long days
  - exposed to day lengths below a critical minimum
  - exposed to day lengths longer than a critical minimum
  - exposed to a sequence of long days prior to exposure to short days
43. Light distribution in a crop canopy can be manipulated by...
- row spacing
  - direction of planted row (north-south versus east-west)
  - plant population
  - all of the above
44. Double cropping refers to a system where...
- two crops are grown in separate parts of the same field during the same growing season
  - two crops are planted simultaneously in the same season and the same field, for example corn and cow peas
  - one crop is planted immediately following another crop during the same growing season
  - one crop is planted this growing season and a different crop is planted the next season
45. Most of the weight of a plant is comprised of three elements. They are...
- nitrogen, phosphorus and potassium
  - nitrogen, phosphorus and carbon
  - carbon, oxygen and hydrogen
  - carbon, calcium and phosphorus
46. Why would you use a surfactant to a pesticide for application?
- to enhance the pesticide's activity
  - to aid the spreading and sticking of the pesticide
  - to assist the pesticide in crossing the leaves' waxy cuticle
  - All of the above
47. The reason for adding liquid fertilizer solution to pesticide applications is to...
- optimize the pesticide's activity
  - aid in the penetration and absorption of the pesticide
  - aid in the translocation of the pesticide to the active site
  - all of the above

48. Which of the following is a beneficial insect predator?
- a.) Lady beetle
  - b.) European corn borer
  - c.) Grasshopper
  - d.) White grubs
49. Which of the following measures can be used to prevent herbicide resistance from developing in your crops?
- a.) crop rotation
  - b.) rotating herbicide families
  - c.) using Integral Pest Management, including cultivation
  - d.) all of the above
50. Soil compaction can be a major problem. Soil compaction leads to which of the following?
- a.) slow plant emergence
  - b.) nutrient deficiencies
  - c.) root restriction
  - d.) all of the above