

# 2004 CROP PRODUCTION

## EXAM KEY

Area Crops Contest



**Instructions:** READ EACH MULTIPLE-CHOICE STATEMENT CAREFULLY AND THEN MARK THE ANSWER ON THE SCORE SHEET THAT CORRESPONDS TO THE BEST ANSWER. YOU MAY USE A CALCULATOR AND THE YELLOW CORN & SOYBEAN FIELD GUIDE ON THIS PART OF THE CONTEST. GOOD LUCK!

1. If you are buying 45-0-0, you are buying \_\_\_\_\_ fertilizer.  
A. lime      B. nitrogen      C. potassium      D. phosphorus      E. seed
2. Which of the following soybean relative maturity groups will flower first in central Illinois, Indiana, and Ohio?  
A. Group 2      B. Group 3      C. Group 4      D. it does not matter
3. Which of these is an advantage of using no-till?  
A. decreased herbicide use  
B. better insect control  
C. better disease control  
D. decreased fuel consumption
4. Soybean growth and maturation is most affected by  
A. day length  
B. the angle of the sun  
C. temperature  
D. moon intensity
5. Corn growth and maturation is most affected by  
A. day length  
B. light intensity  
C. the angle of the sun  
D. temperature
6. If you wanted to loosen tight, cloddy soil and improve nutrient holding capacity, you should  
A. add sand  
B. add organic matter  
C. add  $\text{CaCO}_3$  (lime) and fertilizer  
D. add  $\text{CaSO}_4$  (gypsum) and fertilizer  
E. none of the above would work
7. A black layer at the base of a corn kernel taken from an ear of corn in the field indicates  
A. disease  
B. drought  
C. weevil damage  
D. black-tip of corn  
E. physiological maturity
8. Plate-like structure in the top six inches of a soil is often a sign of what?  
A. earthworms  
B. good soil tilth  
C. compaction  
D. an undisturbed soil  
E. both C and D

9. Which of the following grains do not have standards established by the USDA?  
 A. Canola      B. Wheat      C. Corn      D. Alfalfa      E. Oats
10. In corn development what unit is a way of measuring how much heat has accumulated over a 24 hour period for corn development?  
 A. GPA      B. photoperiod      C. cytokinin      D. GDD
11. When is downy mildew a problem in soybeans?  
 A. April and May  
 B. from late April to early June  
 C. June and July only  
 D. from mid June to September
12. Soils with high CEC (Cation Exchange Capacity) ranges are \_\_\_\_\_ buffers than low CEC soils and therefore would require \_\_\_\_\_ tons of lime to raise soil pH from 5.2 to 6.2.  
 A. better, more      B. poorer, more      C. better, less      D. poorer, less
13. A nozzle sprays at an angle of  $70^{\circ}$ . What height above the crop should the boom be placed?  
 A. 15-17 inches  
 B. 20-22 inches  
 C. 21-23 inches  
 D. 10-12 inches  
 E. E. 17-19 inches
14. What type of nozzle should a farmer use if he is wanting to apply a circular spray pattern of an insecticide or fungicide on his field crop?  
 A. Broadcast      B. Flooding flat      C. Hollow cone      D. Flat fan
15. Which of the following formulas would you use to find the volume of a tank?  
 A.  $(3.14 + \text{radius})$   
 B.  $(3.14)(\text{diameter})(\text{height})$   
 C.  $(3.14)(\text{diameter})^2$   
 D.  $(3.14)(\text{radius})^2(\text{height})$
16. Which of the following nutrients has limited availability in soils with a pH in the range of 5.5-6.0?  
 A. potassium      B. iron      C. manganese      D. phosphorus
17. Farmer Lindborg just had a hailstorm hit his soybean field. What minimum population must remain (survive) in order to still have a potential yield of 90%?  
 A. 160,000      B. 120,000      C. 80,000      D. 60,000      E. 40,000
18. One bushel of soybeans at 11% moisture weighs approximately how much?  
 A. <56.00      B. 56.4      C. 58.65      D. 62.14      E. >64.00

19. If you have a hoop with a diameter of 30 inches, what factor do you multiply the number of plants within the hoop by to achieve plants per acre?  
A. 8878      B. 1000      C. 24662      D. 6165
20. Roots are different from stems as roots do not have (never have)  
A. nodes and internodes      B. xylem      C. phloem      D. rhizobia
21. If you wanted to convert 345 total hectares into acres, you would get approximately \_\_\_\_\_ acres.  
A. 155.732      B. 170      C. 852      D. 111.799      E. 139.725
22. When talking about pathogens as beneficial organisms for protecting crops against damage from an insect larva, the main route(s) a pathogen enters into an insect's body is/are:  
A. orally as the insect eats contaminated plant parts  
B. directly by contact through the insect's skin  
C. there are no known pathogens of insects  
D. A and B are correct
23. When looking at Yellow foxtail and Green foxtail, the best way to tell them apart is that Yellow foxtail has \_\_\_\_\_ .  
A. long hairs near the base of the blade and a flat sheath  
B. a tall membranous ligule  
C. long clasping auricles that wrap around the stem  
D. a triangular stem in cross-section and a short sheath
24. Legumes are \_\_\_\_\_ and have \_\_\_\_\_ root systems.  
A. dicots, tap      B. monocots, fibrous      C. dicots, fibrous      D. monocots, tap
25. Johnsongrass has \_\_\_\_\_ unlike sudangrass plants.  
A. roots      B. flowers      C. internodes      D. rhizomes      E. stolons
26. Of the following grasses \_\_\_\_\_ is best adapted mixed with a 3 cut red clover hay crop.  
A. Tall fescue      B. Orchardgrass      C. Cheat      D. Smooth brome grass
27. What is the proper seeding depth for Alfalfa.  
A. 1 inch      B. 1 1/2 inch      C. 1/2 inch      D. 2 inches
28. Of the following types of crop residue, which is least beneficial in protecting the soil from soil erosion?  
A. wheat      B. corn      C. soybean      D. hay
29. CAUTION, WARNING, and DANGER are \_\_\_\_\_ and always found on the herbicide label.  
A. toxicity levels      B. signal words      C. formulations      D. modes of action      E. A & B

30. You are conducting some seed plot experiments for a small seed company. In order to calculate yield on a per acre basis, you need to calculate the plot area. The plot was 50 feet by 30 feet. How large is the plot on a per acre basis?  
A. 0.25 acres      B. 0.0232 acres      C. 0.034 acres      D. 0.01 acres

31. Length is measured in  
A. inches      B. gallons      C. square inches      D. cubic      E. ppm

32. Most of the corn in Indiana is planted in rows separated by \_\_\_\_\_ inches.  
A. 6      B. 24      C. 30      D. 36      E. 40

33. What is the nutrient that is supplied by dolomitic limestone that is not provided by calcitic limestone?  
A. iron      B. manganese      C. nitrogen      D. magnesium      E. plutonium

34. Soil erosion is a pollutant of surface water and is by volume the greatest contaminant of surface water.  
A. true      B. false

35. What is the % moisture in corn when it reaches physiological maturity?  
A. 15%      B. 24%      C. 35%      D. 45%

36. The minimum till system of crop production  
A. works best for early planting in heavily mulched soils  
B. is best adapted to lighter sandy soils  
C. destroys soil structure  
D. usually reduces the insect and disease problems

37. Rhizobium nodules on legumes are healthy and active when \_\_\_\_\_ in color.  
A. yellow      B. pink (steak colored)      C. green      D. brown (tan)

38. A herbicide recommended for \_\_\_\_\_ application is least likely to interfere with planting.  
A. preemergent      B. postemergent      C. preplant incorporated

Questions 39 & 40: You have just received your soil test results in the mail. The Bray  $P_1$  result showed 70 lb/A available phosphorus. Exchangeable potassium was found to be 215 lb/A soluble potassium. This area of the field is capable of 60 bu/A soybeans in a good year. The soil type is a silt loam with a CEC of 10.

39. How many pounds of phosphorus ( $P_2O_5$ ) need to be applied per acre for soybeans?  
A. 25      B. 50      C. 65      D. 70      E. 0

40. How many pounds of potassium ( $K_2O$ ) need to be applied per acre for soybeans?  
A. 60      B. 80      C. 90      D. 105      E. 0