

State Crops Exam 2022

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, the 2022 Corn and Soybean Field Guide and the Purdue Extension Forage Guide on this part of the contest.

1. What stage of corn growth and development do you have silk development?
 - A. R1
 - B. R3
 - C. R6
 - D. VT
2. Calculate the pounds of soybeans at 14.5% moisture you will need to equal one bushel of 13% moisture soybeans.
 - A. 60.35
 - B. 60.70
 - C. 61.05
 - D. 61.41
3. If you are calibrating your corn planter and desire 34,000 kernels per acre in 36 inch rows, the spacing between kernels in the row should be
 - A. 5.1"
 - B. 5.4"
 - C. 4.8"
 - D. 4.9"
4. What is the approximate CEC range on sandy loam soils?
 - A. 15-30
 - B. 6-20
 - C. 3-8
 - D. None of the above are correct
5. Farmer Gracie is conducting some seed plot experiments for a small seed company. In order to calculate the yield on a per acre basis, he needs to calculate the plot area. The plot was 45 feet by 30 feet. How large is the plot?
 - A. 0.251 acres
 - B. 0.023 acres
 - C. 0.143 acres
 - D. 0.031 acres
6. If Farmer Seth planted corn on April 20 with 28,000 plant population per acre, what would his expected percent of optimum yield be for the year?
 - A. 97
 - B. 98
 - C. 99
 - D. 100
7. How many bushels of corn would you need to fill 22,368 cubic feet?
 - A. 10,973
 - B. 17,933
 - C. 20,934
 - D. 25,916

8. In mid-April, Farmer Eric has a field of soybeans with foliage that has been skeletonized giving them a lacy appearance. What pest is causing this damage?
- A. Soybean Thrips
 - B. Soybean Aphid
 - C. Twospotted Spider Mites
 - D. Mexican Bean Beetle
9. Corn plants deficient in _____ will have a purplish color and stunted growth.
- A. Potassium
 - B. Manganese
 - C. Magnesium
 - D. Phosphorus
10. Farmer Tobias needs to apply his pre-emergence chemical. He is having issues with wind the last few days and he fears the plants will break through the soil soon. What type of spray nozzle should he use to limit drift due to wind?
- A. Flooding flat
 - B. Even Flat Fan
 - C. Hollow Cone
 - D. Broadcast
11. A farmer calls to complain that his soybeans are showing severe leaf burn after being sprayed with a post-emergence soybean herbicide. What group of herbicides was probably used?
- A. growth regulators
 - B. pigment inhibitors
 - C. cell membrane disruptors
 - D. growing point disruptors
12. Deficiency symptoms occurring on the lower leaves of the soybean plant most likely indicates a deficiency of ____.
- A. sulfur
 - B. potassium
 - C. magnesium
 - D. manganese
13. Nutrient deficiency symptoms occurring in the upper leaves of the corn plant most likely indicates a deficiency of ____.
- A. nitrogen
 - B. magnesium
 - C. potassium
 - D. manganese
14. For sampling purposes, what part of the plant should you sample if your soybeans are over 12" tall and how many plants should you sample?
- A. top fully expanded trifoliates, 50-100 plants
 - B. top fully expanded trifoliates, 20-30 plants
 - C. entire plant above ground, 20-30 plants
 - D. entire plant above ground, 50-100 plants
15. _____ has a compressed hairy sheath, fringe of hairs on the ligule, leaf blade with dense hairs, and no auricles.
- A. Large Crabgrass
 - B. Yellow Foxtail
 - C. Witchgrass
 - D. Goosegrass

16. Which of the following corn pests would you expect to see April- June?
- A. Corn rootworm, Slugs, Japanese Beetles
 - B. Seedcorn Maggot, Rodents, White Grubs
 - C. Stalk Borer, Armyworms, Needle Nematodes
 - D. All of the above are correct.
17. A(n) _____ is the area between two nodes in corn plants.
- A. external node
 - B. leaf
 - C. internode
 - D. root
18. 32 plants were counted in a 34 inch diameter "hula hoop", how many thousand soybeans plants per acre can you expect?
- A. 207
 - B. 221
 - C. 228
 - D. 214
19. Farmer Mary found a weed in her field that had ovate true leaves with unevenly toothed edges that have a strong odor when they are crushed. Which of the following is the weed she has located?
- A. Marestalk
 - B. Jimsonweed
 - C. Velvetleaf
 - D. Tall Waterhemp
20. A bushel is a measure of _____.
- A. area
 - B. weight
 - C. volume
 - D. density
21. Which of the following is a fungus that invades growing points of corn plants causing partial or total replacement of the flower structure with a mass of unorganized leaves?
- A. Puccinia sorghi
 - B. Exserohilum turcicum
 - C. Sclerophthora macrospora
 - D. Puccinia polysora
22. Corn kernels on an ear have gained the maximum amount of dry matter content when _____.
- A. the ear drops
 - B. black-layer formation occurs
 - C. kernels dent
 - D. the kernels are below 20% moisture
23. Farmer Jaden was scouting her soybean field in August and discovered leaves had turned red-brown. What pest might be the reason for this damage?
- A. Japanese Beetle
 - B. Bean Leaf Beetle
 - C. Two-spotted Spider Mite
 - D. Green Stink Bug

24. Fungicides are _____.
- A. chemicals that may control or kill plants, animals, bacteria or anything that is considered an undesirable pest
 - B. a group of chemicals that control or kill plants like weeds in crop fields or lawns
 - C. a chemical group that control fungus organisms and are commonly used for seed treatment when planting corn
 - D. chemicals that kill all bacteria that are harmful in crop fields and crop storage areas like grain bins
25. 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
26. What is the gallons per minute (GPM) output per nozzle required to broadcast a herbicide at 15 gallons per acre (GPA), using a nozzle spacing of 4 feet and a ground speed of 15mph?
- A. 0.099
 - B. 0.152
 - C. 1.211
 - D. 1.818
27. A 65% leaf loss due to hail at the 9 leaf stage causes _____ average yield loss on your corn crop this year.
- A. 6%
 - B. 7%
 - C. 5%
 - D. 8%
28. What is the percent moisture in corn when it reaches physiological maturity?
- A. 65
 - B. 55
 - C. 45
 - D. 35
29. You live north of US 224, what maturity group of soybeans should you plant?
- A. Group 1
 - B. Group 2
 - C. Group 3
 - D. Group 4
30. Shrinkage in grain is calculated due to
- A. known percentages of grain eaten by insects over time in stored grain
 - B. known percentages of damage that always occur in grain
 - C. moisture loss when drying grain to a desired moisture for safe storage
 - D. all of these factors combined that determine percent shrinkage
31. The selectivity of a herbicide is a measure of the
- A. time it will remain active in the soil
 - B. herbicide's ability not to go off target (i.e. no drift, runoff, etc.)
 - C. species of weeds it will kill or control
 - D. toxicity to humans

32. Which of the following insects does not have a complete metamorphosis life cycle?
- A. Green Stink Bug
 - B. Fall Armyworm
 - C. Mexican Bean Beetle
 - D. Wireworm
33. How many cubic feet are there in a rectangular building 42' wide, 30' deep, and 12' high?
- A. 84
 - B. 168
 - C. 7560
 - D. 15120
34. There is/are _____ quart(s) in 1.5 pints.
- A. 0.5
 - B. 0.75
 - C. 1
 - D. 3
35. Farmer Anthony has 405 acres how many Hectares does he have?
- A. 16.40
 - B. 164.03
 - C. 162.0
 - D. 166.05
36. What is the proper seeding depth for Alfalfa?
- A. 1 inch
 - B. 1 ½ inch
 - C. ½ inch
 - D. 2 inches
37. Using a 50 foot knotted rope (with knots at 6 inch intervals), you find residue touching 25 knots. What is the percent residue cover?
- A. 12.5%
 - B. 25%
 - C. 50%
 - D. 75%
38. Farmer Jenna is planting a cover crop in late fall after harvest to slow erosion, improve soil quality, and scavenge N from soil and manure. Which of the following type of plant should she be making her plant selection from?
- A. Non-Legume Broadleaves
 - B. Grasses, particularly winter cereals
 - C. Legumes
 - D. None of the above
39. Select the factor that must be considered when selecting a cover crop.
- A. Reduction of the chance of cross-hosting diseases
 - B. Climate
 - C. Soil fertility needs
 - D. All of the above

40. Which of the following cover crops would be able to tolerate poorly drained soils?

- A. Sudangrass
- B. Alfalfa
- C. Hairy Vetch
- D. Sweetclover