KEY
2004 FFA
State Crops Contest

Note: Mark the correct answer on the answer sheet. One answer per question.

CORN

1. Corn is thought to have originated as a species in:
   a. U.S. and Canada
   (b) Mexico and Central America
   c. England and Western Europe
   d. India and Pakistan

2. The ____ (plant part) protects the radicle of the corn plant during germination of the seed until it emerges into the soil.
   a. coleoptile
   b. cotyledons
   (c) coleorhiza
   d. mesocotyl

3. Corn seedlings frosted in the spring when they are at the 3 or 4 leaf stage of development will probably:
   a. die
   b. not die, but fail to grow any more
   c. recover, but with a large yield loss
   (d) recover with little loss in yield

4. Corn plants turning yellow and dying in a poorly drained area with standing water is caused primarily by a deficiency of ____ to the plant.
   (a) oxygen (O_2)
   b. water (H_2O)
   c. nitrogen
   d. carbon dioxide (CO_2)

5. Weed seedlings are <u>most</u> susceptible to herbicides when they are:
   a. stunted due to drought
   (b) vigorous and actively growing
   c. deficient in nutrients, such as nitrogen
   d. slow growing due to cold weather

6. A farmer calibrating a sprayer with a 60-foot boom has applied 0.35 gal in 50 feet. What is the rate of application in gal/acre of the sprayer? (acre = 43,560 ft^2)
   (a) 5.1
   b. 14.5
   c. 30.5
   d. 254.1

7. Corn for silage should be harvested when the:
   (a) grain is half milk to black layer stage
   b. grain is in "milk" or roasting ear stage
   c. plant has reached maximum wet weight stage
   d. whole plant moisture is about 55%

8. Corn is a member of which plant family?
   a. lily
   b. legume
   c. nightshade
   (d) grass

9. The plant nutrient which is typically applied at about one (1) pound per expected bushel yield per acre is:
   a. calcium
   (b) nitrogen
   c. phosphorus
   d. potassium

10. The life cycle of corn is:
   (a) Spring annual
   b. Winter annual
   c. Biennial
   d. Perennial

11. Yield is the most important factor in selecting a corn hybrid to plant. In Minnesota what is the second most important factor?
   a. Roundup Ready
   b. Lodging resistance
   (c) Relative maturity rating
   d. Test weight

12. The official standard test weight for a bushel of corn for grain marketing is:
   a. 32
   b. 48
   (c) 56
   d. 60

13. The highest yields of corn in Minnesota typically are obtained from plantings made:
   (a) April 20-May 1
   b. May 1-May 20
   c. May 20-June 6
   d. June 6-June 20

14. Establishing a uniform stand of corn is enhanced when high quality seed is planted at the optimum date and at a depth of:
   a. 3/4 to 1 inches
   b. 1 to 2 inches
   (c) 1 1/2 to 2 1/2 inches
   d. 2 1/2 to 3 1/2 inches

15. If the soil is acidic, the pH can be made more neutral by the addition of:
    a. agricultural lime
    b. barnyard manure
    c. green manure
    d. ammonium nitrate

16. The feed value of corn silage is primarily determined by:
    a. the number of plants per acre
    b. the grain content of the silage
    c. the tonnage (yield) of silage per acre
    d. the type of storage, ie. pit, bunker, stave, glass lined silo

17. Corn for grain is safe from frost, i.e. no yield loss will occur when:
    a. the corn is at the dent stage
    b. the silks have dried up
    c. the leaves are drying
    d. the black layer has been formed

18. This nutrient is very important to improve stalk strength and lodging resistance in corn:
    a. Boron
    b. Nitrogen
    c. Phosphorus
    d. Potassium

19. Which one of the following is NOT a factor in determining the amount of fertilizer to apply?
    a. soil structure
    b. soil test results
    c. soil organic matter
    d. crop rotation

20. The highest "safe" moisture content for storage of shelled corn in the fall without further drying:
    a. 10
    b. 13.5
    c. 15
    d. 17.5

21. A good 4-year rotation sequence with corn is:
    a. Alfalfa, alfalfa, soybeans, corn
    b. Oats, alfalfa, alfalfa, corn
    c. Corn, corn, corn, corn
    d. Wheat, canning peas, corn, corn

22. You are doing a yield check in a field. The average of 3 samples, 30 feet long and 30 inch rows is 10.4 lbs of grain. How many pounds per acre is this field yielding?
    a. 5034
    b. 6040
    c. 2013
    d. 9360

23. If the field you were checking for yield was at 28% moisture and the weighed yield was 186 bu with test weight of 52 lbs/bu, how many bushels would you have after drying to 15.5% and a final weight of 55.8 lbs/bu?
    a. 110
    b. 143
    c. 147
    d. 158

24. The corn insect that can do damage to both silks and roots is:
    a. corn ear worm
    b. cutworm
    c. corn borer
    d. corn root worm

25. Corn is most susceptible to moisture stress at which stage of development?
    a. tassel initiation approximately 6^{th} leaf stage
    b. ear shoot initiation – approximately 8-10 leaf stage
    c. tassel emergence
    d. early milk stage

BARLEY

26. Barley is thought to have originated or is native to:
    a. the U.S.
    b. northern Europe
    c. the Mediterranean area
    d. southeast Asia

27. Most barley in Minnesota is grown primarily for:
    a. feed
    b. malting
    c. pasture
    d. seed

28. Barley, based on species and use, belongs to a group of crop plants known as:
    a. cereals
    b. dicots
    c. vegetables
    d. pulses

29. Barley is classified as a member of the __ family of plants.
    a. sedge
    b. composite
    c. legume
    d. grass

30. The first true leaf of barley is protected as it grows through the soil during the germination and emergence by the ___?
    a. epicotyl
    b. mesocotyl
    c. hypocotyl
    ⓓ coleoptile

31. The stage preceding the "boot" stage of development in the barley plant is:
    a. heading
    b. tillering
    c. anthesis
    ⓓ jointing (rapid stem elongation and leaf growth)

32. The "flag" leaf is important photosynthetically to grain production because it is:
    a. in the center of the plant canopy
    b. near the bottom of the plant canopy
    c. surrounds the grain at the top of the plant
    ⓓ the last leaf to die

33. Seed treatment with a systemic fungicide will be most effective in controlling which barley disease?
    a. leaf rust
    b. spot blotch
    c. ergot
    ⓓ loose smut

34. High quality barley seed should have a high percentage of _____.
    a. inert matter
    b. other crop seeds
    c. dormant seed
    ⓓ pure, live seed

35. The most common rate of seeding high quality seed of barley per acre in Minnesota is:
    a. 40 pounds
    b. 48 pounds
    ⓒ 96 pounds
    d. 144 pounds

36. For best results in Minnesota, barley should be planted when the soil temperature is approximately ___°F in the planting zone.
    ⓐ 40
    b. 50
    c. 65
    d. 75

37. A farmer inspects barley in a storage bin and finds granary weevils present. The insects probably:
    a. came with the grain from the field
    b. came from the use of untreated seed
    ⓒ were in the storage bin when filled
    d. migrated from southern locations on the air (wind) currents

38. Barley in Minnesota is usually planted in a row spacing of:
    a. 6-8 inches
    b. 12-14 inches
    c. 22-28 inches
    d. 32-40 inches

39. When buying or selling barley, a bushel weighs ____ pounds.
    a. 32
    b. 48
    c. 56
    d. 60

40. In selecting a malting variety of barley to grow, a farmer must pay close attention to the following trait:
    a. seed cost
    b. seed quality (ie. % germination)
    c. lodging resistance
    d. maturity

41. Because of barley's mode of pollination your seed for a crop intended for malting is most likely:
    a. foundation seed
    b. Anheuser-Busch No. 1
    c. hybrid seed
    d. seed from last year's crop

42. To make malt from barley it must first be:
    a. boiled
    b. germinated
    c. ground
    d. roasted

43. In marketing barley, “dockage” refers to:
    a. coarse and fine material separated by screens
    b. non-malting quality grain
    c. other grain separated by hand picking
    d. inert matter, other crops and weed seed

44. One of the major storage problems with barley is heat damage which may occur when moisture contents of the grain storage exceeds what percentage?
    a. 13
    b. 15.5
    c. 18
    d. 22

45. One of the major diseases affecting malting barley in Minnesota in the years 1993-2002 was:
    a. head blight
    b. stem rust
    c. loose smut
    d. cyst nematode

46. Lodging in barley is most likely to occur as a result of:
    a. 2 times normal seeding rate
    b. seeding 10 days later than normal
    ⓒ applying fertilizer for an expected yield of 100 bushel
    d. making 2 applications of MCPA and Stampede for broadleaf and grass weed control

47. Number of acres in a field of 1250 feet x 1742 feet is approximately:
    a. 25
    b. 30
    c. 35
    ⓓ 50

48. The barley disease 'yellow dwarf' is caused by a virus that is transferred from plant to plant by:
    a. wind
    b. raindrop splash
    ⓒ aphid feeding
    d. grasshopper chewing

49. The inflorescence (head) of barley is considered a:
    a. panicle
    b. raceme
    ⓒ spike
    d. umbel

50. In evaluating the quality of barley grain it is often necessary to “partially grind” the grain to remove the hulls (lemma and palea) in order to inspect the kernel for heat and other damages. This is known as:
    a. degluming
    b. grinding
    ⓒ pearling
    d. quality control