

**2018 State FFA Crops Contest  
Management Exam**

Name: \_\_\_\_\_

FFA Chapter: \_\_\_\_\_

Contestant No.: \_\_\_\_\_

**Corn (Questions 1-25). Circle one answer for each question.**

1. Which is false?
  - a. Corn seed should not be planted when soil temperature is below 50°F
  - b. Planted corn seed will not absorb water when soil temperature is below 50°F**
  - c. The minimum soil temperature needed for planted corn seed to germinate is 50°F
  - d. Corn emergence typically occurs once 125 growing degree days have accumulated since planting
  
2. Which relative maturity is common for corn hybrids planted in northwestern Minnesota?
  - a. 65
  - b. 80**
  - c. 95
  - d. 110
  
3. If corn planting is delayed until late May, growers should consider:
  - a. Increasing the planting rate (seeds/acre)
  - b. Planting at a shallower depth
  - c. Planting a hybrid with a smaller relative maturity rating**
  - d. Greater likelihood of seed decay and seedling blights
  
4. The secondary root system in corn which becomes visible by V2 (2 leaf collar stage) and dominant by V6 (6 leaf collar stage):
  - a. Seminal root system
  - b. Nodal root system**
  - c. Lateral root system
  - d. Brace root system
  
5. Root lodging in corn is favored by:
  - a. Early planting followed by a late spring frost
  - b. Burning of leaf tissue from foliar fertilizer application
  - c. Saturated soil conditions followed by strong winds**
  - d. Drought stress

6. Corn subjected to flooding has greatest risk of injury or death if flooding occurs:
  - a. **During early vegetative stages in corn**
  - b. During the grain-filling period in corn
  - c. When soil temperature is colder rather than warmer
  - d. On soils with coarse texture rather than fine texture
  
7. Loss of leaf tissue due to hail causes greatest yield loss in corn if it occurs during:
  - a. Early vegetative stages
  - b. Mid-vegetative stages
  - c. **Pollination**
  - d. Grain filling
  
8. What is the growth stage of corn where drought stress causes kernel abortion?
  - a. R1 (silking)
  - b. **R2 (blister)**
  - c. R4 (dough)
  - d. R5 (dent)
  
9. What is the growth stage of corn where drought stress reduces kernel weight?
  - a. R1 (silking)
  - b. R2 (blister)
  - c. R3 (milk)
  - d. **R4 (dough)**
  
10. Managing this nutrient for corn production can be challenging because it is susceptible to leaching following heavy rainfall. .
  - a. **Nitrogen**
  - b. Phosphorus
  - c. Magnesium
  - d. Zinc
  
11. Deficiency of this nutrient in corn can appear as interveinal chlorosis of the youngest leaves:
  - a. Nitrogen
  - b. Phosphorus
  - c. Potassium
  - d. **Sulfur**
  
12. Which period of the corn growth cycle is weed control most important for minimizing corn yield loss due to competition with weeds?
  - a. Pre-plant
  - b. **Mid-vegetative stages**
  - c. Pollination
  - d. Grain filling

13. Which is a typical symptom of pigment inhibitor herbicide injury in corn?
- Bottle brush root system
  - Necrosis of margins on lower leaves
  - Yellowing and whitening of leaf tissue**
  - Fused brace roots and leaning stalks
14. Which insect pest can reduce the number of planted corn seeds that emerge?
- Corn rootworm
  - Dingy cutworm
  - Stink bug
  - Wireworm**
15. Which insect pest can reduce corn yield by reducing plant population early in the season?
- Corn rootworm
  - Black cutworm**
  - European corn borer
  - Grasshopper
16. European corn borer damages corn plants by:
- Feeding on roots
  - Tunneling inside stalks**
  - Feeding on silks
  - Piercing and removing liquids from leaves
17. Which is a fungal disease of corn that is more likely to occur in fields where corn is grown continuously and not rotated with other crops?
- Common rust
  - Goss's wilt
  - Maize dwarf mosaic
  - Northern leaf blight**
18. Which foliar disease of corn appears as lesions that are narrow and long (up to 2 inches)?
- Common rust
  - Eyespot
  - Gray leaf spot**
  - Holcus leaf spot
19. Which is a bacterial disease of corn that appears as long, grayish-green to black, water-soaked lesions with wavy edges that may grow together?
- Anthraxnose leaf spot
  - Eyespot
  - Goss's wilt**
  - Northern leaf blight

20. What is the corn growth stage when kernel contents are pasty due to starch accumulation?
- a. R2 (blister)
  - b. R3 (milk)
  - c. **R4 (dough)**
  - d. R5 (dent)
21. Corn silage is typically harvested when whole-plant moisture content is:
- a. 15%
  - b. 25%
  - c. 45%
  - d. **65%**
22. Once corn grain has reached physiological maturity, grain moisture content is typically:
- a. 15%
  - b. 24%
  - c. **32%**
  - d. 65%
23. Which hybrid trait is not associated with faster in-field dry-down of grain after physiological maturity?
- a. Early ear drop from an upright position
  - b. **Hybrids with longer relative maturity**
  - c. Looser husks
  - d. Thinner seed coats
24. Which statement about test weight in corn is false?
- a. It can be reduced with drought stress
  - b. It can be reduced with below-normal air temperatures during the grain-filling period
  - c. It can be reduced with freeze damage to immature corn
  - d. **It can be reduced when grain is dried**
25. Corn grain is commonly used for ethanol production because it contains a high amount of:
- a. Fiber
  - b. Oil
  - c. Protein
  - d. **Starch**

**Oats (Questions 26-50). Circle one answer for each question.**

26. Oat varieties grown for the human consumption (milling) typically have all of the following characteristics except:
- a. Bright color
  - b. High beta glucan
  - c. **High oil**
  - d. High protein
27. Oat kernels after the hulls have been removed are referred to as:
- a. Glumes
  - b. **Groat**
  - c. Lemma
  - d. Palea
28. Oat grain yield is typically highest when oats are planted after:
- a. Barley
  - b. Corn
  - c. **Soybean**
  - d. Wheat
29. Oats grown for forage are sometimes mixed with \_\_\_\_ at planting to increase forage quality.
- a. barley
  - b. **field pea**
  - c. millet
  - d. wheat
30. When oats are planted as a companion crop with alfalfa and planting occurs in the early spring, the seeding rate of oats should be \_\_\_\_ the normal seeding rate for oats when it is not a companion crop.
- a. one-fourth of
  - b. **two-third of**
  - c. the same as
  - d. 1.5 times greater than
31. The optimal seeding depth for oats is generally:
- a. 0.25-0.5 inches
  - b. 0.5-1.0 inches
  - c. **1.5-2.5 inches**
  - d. 3.0 inches
32. Early planting is recommended for oats because it:
- a. Increases the rate of emergence
  - b. Improves control of wild oats
  - c. Reduces tillering
  - d. **Can help the crop avoid high temperature stress**

33. Delayed planting of oats until mid- to late May often results in low grain yield due to:
- Poor seed germination
  - Low plant population
  - Reduced kernel weight**
  - Increased lodging
34. The jointing stage in oat is when:
- Tiller formation occurs
  - Leaf sheaths lengthen, causing plants to stand more upright
  - The internodal tissue begins to elongate**
  - Heads begin to emerge
35. Flowering in oats:
- Requires long days (day length of 12 hours or more)**
  - Requires short days (day length of less than 12 hours)
  - Is not affected by day length
36. Post-emergence herbicide applications in oats are typically made during which period of growth?
- Tillering**
  - Stem extension
  - Heading
  - Flowering
37. The number of tillers that form heads in oats is determined by which period of growth?
- Tillering
  - Stem extension**
  - Heading
  - Flowering
38. Which of the following is generally the most widespread and destructive disease of oats in Minnesota?
- Barley yellow dwarf virus
  - Crown rust**
  - Septoria leaf spot
  - Stem rust
39. Stem rust and crown rust are most commonly transmitted to oat fields in Minnesota through:
- Aphids
  - Contaminated soil dispersed by equipment
  - Planting of contaminated seed
  - Wind**

40. Foliar fungicides can be used to control all oat diseases listed below except:
- Barley yellow dwarf virus**
  - Crown rust
  - Septoria leaf spot
  - Stem rust
41. To best protect against grain yield losses due to foliar diseases in oats, foliar fungicide applications in oats typically occur near:
- Tillering
  - Jointing
  - Booting**
  - Grain fill
42. Blast of oats is when:
- Leaves and stems are over-run by rust
  - Plants are infected by smut
  - Poor tillering occurs
  - Spikelets do not develop completely and sterility occurs**
43. Oats harvested as haylage will have the highest forage quality when harvested near:
- Tillering
  - Jointing
  - Heading**
  - Maturity
44. In the field, oat grain is considered mature once:
- The upper leaves begin to turn from yellow to brown
  - The upper internode supporting the head has lost all green color**
  - The entire plant is brown
  - All leaves have fallen off the plant
45. Oats harvested for grain are typically swathed to:
- Allow oat straw to be harvested later
  - Avoid infection by oat smut
  - Improve in-field drying of grain
  - Reduce shattering**
46. Swathing in oats should begin when grain moisture content is about:
- 15%
  - 25%
  - 35%**
  - 45%

47. In Minnesota, oat grain harvest typically occurs in:
- a. Late June
  - b. Late July**
  - c. Late August
  - d. Late September
48. Grain yield of hull-less oat varieties is typically \_\_\_\_ that of hulled varieties.
- a. less than**
  - b. equivalent to
  - c. greater than
49. The human food industry (milling) market typically requires oats to have a minimum test weight of:
- a. 32 pounds/bushel
  - b. 38 pounds/bushel**
  - c. 54 pounds/bushel
  - d. 56 pounds/bushel
50. Oat is a self-pollinated crop, so seed saved from the crop will be genetically \_\_\_\_ to the variety planted.
- a. identical**
  - b. intermediate between the two parents
  - c. segregating for various plant traits