SMSU Ag Bowl Invitational 2026

Management Test

1. Which structure is responsible for transferring pollen in corn?
   A) Tassel
   B) Silk
   C) Kernel
   D) Leaf

2. The male reproductive part of the corn plant is the:
   A) Tassel
   B) Ear
   C) Leaf blade
   D) Stalk

3. Which of the following describes a corn kernel?
   A) Cotyledon
   B) Endosperm and embryo enclosed by a pericarp
   C) True seed with no endosperm
   D) Capsule

4. The optimum soil temperature for corn planting is:
   A) 45°F
   B) 50°F
   C) 60°F
   D) 70°F

5. Narrower row spacing in corn production generally:
   A) Increases weed pressure
   B) Improves light interception
   C) Decreases yield potential
   D) Has no effect

6. A common recommended seeding depth for corn is:
   A) 0.5–1 inch
   B) 1.5–2 inches
   C) 3–4 inches
   D) 4–5 inches

7. A hybrid corn variety is:
   A) Open-pollinated
   B) Produced by crossing two inbred lines
   C) A clone of a parent line
   D) Genetically identical to landraces

8. One bushel of corn weighs:
   A) 48 lbs
   B) 56 lbs
   C) 60 lbs
   D) 62 lbs

9. A common post-harvest issue in stored corn is:
   A) Root rot
   B) Aflatoxin contamination
   C) Leaf blight
   D) Stalk lodging

10. Dent corn is primarily used for:
   A) Sweet corn for human consumption
   B) Grain for feed and ethanol
   C) Popcorn production
   D) Ornamental purposes

11. The European corn borer damages plants by:
   A) Feeding on silks
   B) Boring into stalks and ears
   C) Chewing roots
   D) Defoliating leaves

12. Corn rootworm larvae primarily feed on:
   A) Tassels
   B) Kernels
   C) Leaves
   D) Roots

13. Gray leaf spot in corn is caused by a:
   A) Bacterium
   B) Fungus
   C) Virus
   D) Nematode

14. A common fungal disease that produces orange pustules on leaves is:
    A) Anthracnose
    B) Gray leaf spot
    C) Common rust
    D) Goss's wilt

15. A genetically engineered trait (Bt corn) provides resistance against:
    A) Corn rootworm and European corn borer
    B) Rust and blight
    C) Aflatoxin contamination
    D) Glyphosate exposure

16. Alfalfa belongs to which plant family?
    A) Poaceae
    B) Fabaceae
    C) Solanaceae
    D) Brassicaceae

17. The primary way alfalfa improves soil fertility is through:
    A) Mycorrhizal associations
    B) Rhizobium-mediated nitrogen fixation
    C) Deep taproot nutrient uptake
    D) High organic matter residue

18. Which structure is used to store energy reserves that help alfalfa regrow after cutting?
    A) Root hairs
    B) Taproot crown
    C) Nodules
    D) Stems

19. The purple flowers of alfalfa are mainly pollinated by:
    A) Honeybees
    B) Leafcutter bees
    C) Flies
    D) Wind

20. A "crown bud" in alfalfa refers to:
    A) A new flowering structure
    B) A meristem for regrowth after harvest
    C) A seedling cotyledon
    D) A nodule cluster

21. A newly seeded alfalfa stand is often mixed with which crop for nurse cover?
A) Corn
B) Oats
C) Soybeans
D) Wheat

22. Autotoxicity in alfalfa refers to:
A) Resistance to herbicides
B) Inhibition of new alfalfa seedlings by established plants
C) Nitrogen toxicity
D) Winter injury tolerance

23. A key stand establishment recommendation is:
A) Planting into warm-season sods
B) Seeding into a firm, well-prepared seedbed
C) High seeding depth for stronger roots
D) Avoiding soil testing

24. The ideal stage to harvest alfalfa for dairy-quality hay is:
A) Full bloom
B) Bud to early bloom
C) Seed maturity
D) Vegetative stage

25. The most nutritious part of alfalfa for livestock is the:
A) Stems
B) Flowers
C) Leaves
D) Crown

26. Which mechanical loss is common during harvest of dry alfalfa hay?
A) Root breakage
B) Leaf shatter
C) Stem bruising
D) Lodging

27. The most damaging insect pest of alfalfa in North America is often the:
A) Corn earworm
B) Alfalfa weevil
C) Grasshopper
D) Wireworm

28. Potato leafhoppers cause which characteristic symptom in alfalfa?
A) Yellow “hopperburn” on leaf tips
B) Black lesions on stems
C) White mold growth
D) Reddened crown buds

29. The main fungal disease causing stem breakage and crown rot in alfalfa is:
A) Fusarium wilt
B) Phytophthora root rot
C) Anthracnose
D) Verticillium wilt

30. Which disease is especially problematic in poorly drained soils?
A) Anthracnose
B) Phytophthora root rot
C) Common leaf spot
D) Rust

31. Oats belong to which plant family?
A) Fabaceae
B) Poaceae
C) Brassicaceae
D) Solanaceae

32. The inflorescence of oats is best described as a:
A) Panicle
B) Spike
C) Raceme
D) Umbel

33. The protective outer covering of an oat grain is called the:
A) Aleurone layer
B) Bran
C) Hull
D) Endosperm

34. Oats are considered a:
A) Cool-season annual cereal
B) Warm-season annual cereal
C) Biennial legume
D) Perennial grass

35. Oats are most commonly planted in the:

A) Early spring
B) Late spring
C) Midsummer
D) Early fall

36. One advantage of including oats in a rotation is:

A) They fix atmospheric nitrogen
B) They help break disease cycles in corn and soybeans
C) They improve soil acidity
D) They have no major rotational benefit

37. Oats are often grown as a companion (nurse) crop with:

A) Corn
B) Alfalfa
C) Canola
D) Wheat

38. Which type of oats is most commonly consumed by humans?

A) Hulless oats
B) Red oats
C) Feed oats
D) Black oats

39. Rolled oats (used in breakfast foods) are made by:

A) Dehulling and flattening groats
B) Grinding whole oat kernels
C) Popping dried grains
D) Steam-flaking oat straw

40. One bushel of oats weighs:

A) 32 lbs
B) 48 lbs
C) 56 lbs
D) 60 lbs

41. Swathing oats before combining is sometimes done to:

A) Prevent lodging losses
B) Reduce hull thickness
C) Increase seed size
D) Improve protein content

42. Oats are often marketed for which specialized use?

A) Dairy-quality forage

B) Gluten-free foods (if purity verified)

C) Oilseed processing

D) Tobacco replacement

43. A common insect pest in oat production is the:

A) Potato leafhopper

B) Hessian fly

C) Oat aphid

D) Corn borer

44. Lodging in oats is increased by:

A) Low nitrogen levels

B) Excessive nitrogen fertilization

C) Shallow planting

D) Late planting

45. The most significant fungal disease of oats is:

A) Stem rust

B) Powdery mildew

C) Leaf blotch

D) Smut

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Variety Trial Practicum

1. How is the variety trial program funded?

a. Fees paid by private companies to have their product tested

b. The federal government

c. By grain sales

d. Insurance funds

2. What is the purpose of the Minnesota Corn Evaluation Program?

a. To test fertilizer efficiency across Minnesota farms

b. To evaluate corn varieties for yield and agronomic traits

c. To compare irrigation methods in different soil types

d. To develop new GMO corn hybrids

3. What test locations comprise the northern region?

a. Waseca

b. Montevideo

c. Rosemount

d. Crookston

4. At what planting rate were corn trials planted at?

a. 30,000 plants per acre

b. 33,000 plants per acre

c. 35,000 plants per acre

d. 37,000 plants per acre

5. At what moisture % are grain yields adjusted to for reporting purposes?

a. 20%

b. 17%

c. 15.5%

d. 12.75%

6. Look at table 2. What was the previous crop for the Crookston location?

a. Alfalfa

b. Soy

c. Corn

d. Wheat

7. Look at Table 3. What was the highest yielding variety in the 102 and earlier relative maturity class, at the Lamberton location?

a. E535SS RIB

b. E654

c. LC465-23 PCE

d. 24-01

8. Look at Table 4. What was the lowest yielding variety in the 100 and later relative maturity class?

a. 4501PCE

b. E539

c. 624SSP

d. 24-01

9. Look at Table 3. What was the highest yielding variety in the 103 and later relative maturity class, at the Waseca location?

a. W3309

b. E523

c. LC572-22 SSX

d. 84-04

10. Look at Table 4. What traits does hybrid 786R have?

a. None

b. European corn borer resistance

c. Glyphosate herbicide resistance

d. 2,4-D choline + FOPS resistance

Answers to Plant disorder

1. Bacterial flight B, B, Ve
2. Corn Smut B, Fn, R
3. White mold B, Fn, Ve
4. Ergot B, Fn, R
5. Hail damage corn E, Ha, Ve
6. Billbug damaged corn B, I, Ve
7. Phosphorus Def corn E, Nu, Ve
8. Eyespot B, Fn, Ve
9. Nitrogen Deficiency in late season corn, E, Nu, Ve
10. Tar spot corn, B, Fn, Ve