

2025 Kansas State Agronomy CDE

Agronomic Quiz

**** DO NOT WRITE ON THIS EXAM ****

Write your answers as CAPITAL LETTERS on the form you were given at registration.

Multiple Choice (5 pts each)

1. I have decided I want to plant soybeans on my farm. Because I am in Kansas, when will I most likely plant my soybeans?
A) January-March B) April-May C) August D) September-October E) mid-winter

2. "Sections" are a common way we describe how big a field area is. How many acres are in one section?
A) 100 B) 320 C) 640 D) 1,000 E) 5,280

3. What is the most common way we report the yield of grain crops in the United States?
A) bushels per acre B) pounds per foot C) bales per acre D) tons per hectare E) grain count

4. Which of the following crops is NOT commonly grown in Kansas?
A) soybean B) grain sorghum C) alfalfa D) cotton E) peanut

5. Healthy plants typically appear green based on the wavelength of light they reflect. Which color of light do plants absorb and use the most in growth and flowering processes?
A) red
B) orange
C) yellow
D) blue
E) purple
F) both red and blue
G) both orange and purple
H) none of these are important

6. Which of the following is NOT a cereal crop?
A) corn B) wheat C) rice D) grain sorghum E) canola

7. Which kind of mouthpart does an aphid have?

A) chewing B) piercing/sucking C) sponging D) siphoning E) shredding

8. What does UAN stand for in soil fertility terminology?

A) unavailable adaptive nitrogen
B) urea ammonium nitrate
C) uptake and nutrition
D) under-application of nutrients
E) unintended application of nutrients

9. The harvested part of the cotton plant is considered to be a ____.

A) root B) stem C) fruit D) flower E) leaf

10. Which soil texture would be the most prone to leaching of nutrients and pesticides?

A) clay B) silty clay C) sandy clay D) silt loam E) sand

11. Which of the following is considered a micronutrient?

A) magnesium B) calcium C) manganese D) potassium E) phosphorus

12. Which of these crops has a standard bushel weight of 60 pounds?

A) grain sorghum B) wheat C) dent corn D) oats E) cotton

13. Which of the following is true about the difference between determinate and indeterminate crops?

A) determinate crops produce all their fruit at once, while indeterminate crops produce fruit throughout the growing season
B) indeterminate crops have a fixed growth pattern and stop growing once they reach a certain height, while determinate crops continue growing indefinitely
C) determinate crops require less space than indeterminate crops because they stop growing after a set period
D) both determinate and indeterminate crops require the same care and maintenance for optimal growth
E) there is not an important difference between these two types of crops

14. If I planted these soybean maturity groups on the same day in Wichita, KS, which would flower first?

A) Group 2 B) Group 3 C) Group 4 D) Group 5 E) Group 6

15. Which irrigation method applies water at the lowest volume?

A) sprinkler B) drip C) furrow D) flood E) contact

16. Which of these special grades would be written **before** the crop class in the official Federal Grain Inspection Service grade designation for oats?

A) Bleached B) Ergoty C) Extra-heavy D) Garlicky E) Smutty

17. The crop development phase where roots, stems, and leaves develop is described as ____.

A) vegetative B) reproductive C) germination D) maturation E) leafation

18. Which of these methods is a common way that fertilizers are applied to pastures?

A) top dressing B) banding C) side dressing D) foliar spray E) incorporating

19. Which of the following does not currently have glyphosate-tolerant cultivars on the market?

A) canola B) grain sorghum C) alfalfa D) corn E) cotton

20. Soil organic matter is a source of ____ for crop nutrition.

A) nitrogen B) iron C) carbon D) calcium E) nickel

21. Which pesticide signal word below indicates the most toxic pesticide?

A) CAUTION B) DANGER  POISON C) WARNING D) LOOK OUT E) DANGER

22. In which part of a plant does photosynthesis occur the most?

A) roots B) stems C) leaves D) fruits E) flowers

23. Which of these is the most realistic **irrigated** dent corn (for grain) population per acre in Kansas?

A) 32,000 B) 1.2 million C) 120,000 D) 60,000 E) 2,000

24. Which of these is the most realistic **irrigated** wheat yield (for grain) per acre in Kansas?

A) 180 cwt/ac B) 5 bales/ac C) 100 bu/ac D) 2000 lb/ac E) 300 bu/ac

25. Kansas consistently ranks as a top state for production of which two crops in the United States?

A) wheat & sorghum B) soybeans & corn C) sunflowers & wheat D) cotton & corn

26. What is the fundamental difference between the ways planters and drills operate?

- A) planters are calibrated by seeds per acre and drills are calibrated by weight per acre
- B) planters are only for larger seeded crops and drills are only for smaller seeded crops
- C) planters have seed containers for each individual row and drills have a large central seed hopper
- D) planters are powered by drive wheels and drills are powered by air and vacuum pressure
- E) planters are used in one half of the state and drills are used in the other half of the state

27. If you want to enroll acres in a CRP (Conservation Reserve Program) contract, where would you go?

- A) FSA office
- B) Local co-op
- C) Local library
- D) Seed dealer
- E) State park

28. Wheat and soybeans are often grown in the same season in Eastern Kansas, one right after the other. What is this practice commonly called?

- A) fallow
- B) double cropping
- C) intercropping
- D) continuous cropping
- E) precision ag

29. Which of the following is the most realistic pump volume for an irrigation well in Kansas?

- A) 800 gallons/minute
- B) 15 gallons/hour
- C) 50 gallons/minute
- D) 800 gallons/hour

30. Which of the following can be a problem at harvest in soybeans?

- A) shattering
- B) green stem syndrome
- C) lodging
- D) all of these are common issues

31. Which of the following forage species is native to Kansas?

- A) tall fescue
- B) smooth bromegrass
- C) orchardgrass
- D) little bluestem
- E) alfalfa

32. Which of the following is **NOT** one of the pillars of a sustainable practice?

- A) environmental
- B) social
- C) economic
- D) industrial
- E) all are pillars of sustainability

33. What is the management practice of intentionally **NOT** planting a crop to accumulate resources (typically water) for in the soil to grow a crop in the next season?

- A) tillage
- B) irrigation
- C) monoculture
- D) fallow
- E) eutrophication

34. Which of the following scenarios would result in the **fastest** soil warm-up in the spring?

- A) bare soil
- B) rye cover crop
- C) radish cover crop
- D) no-till with corn residue

35. Which structure holds the male flowers on a corn plant?

- A) ear
- B) silk
- C) cob
- D) tassel
- E) nodule

**** DO NOT WRITE ON THIS EXAM ****

**Work the following calculations on the form you were given at registration.
WRITE YOUR ANSWER WITH UNITS IN THE BOX PROVIDED!**

Round all answers to the nearest one decimal place (for example, 0.1) unless otherwise instructed in the question – some helpful conversions are provided at the end!

Calculations (5 pts each)

36. How many **acres** are in a research plot that is 1,500 feet long by 350 feet wide?
37. Your teacher has a 100-pound bag of wheat seed with 0.5 pounds of weed seeds, 2 pounds of other crop seeds, 1 pound of inert matter, and a 95% germination rate, what is the **percentage of pure live seed** (% PLS) of this bag?
38. Willie Wildcat collects 425 pods from a 4-ft length of row in his soybean field that has 15-inch row spacing. Each pod has 3 seeds and he estimates that there would be 3,000 seeds in a pound. What is the yield estimate for Willie's soybean field in **bushels per acre**?
39. Your soil test recommends applying 52 pounds of K₂O per acre to your 160-acre corn field. If the fertilizer you have access to is KCl (0-0-60), how many **tons** of fertilizer should you apply **per field** to meet your crop's nutritional requirements?
40. When testing for calibration, Willie's self-propelled sprayer traveled 530 feet in 30 seconds. A cup below one of the sprayer nozzles captured 15 fluid ounces of liquid in 12 seconds. The sprayer nozzles are 15 inches apart. What is the current application rate of Willie's sprayer in **gallons per acre**?

*Extra tie-breaker: (write and circle the answer on the bottom of your answer form, **NOT** on this quiz sheet)*

You have a circle of irrigated wheat that you intend to use for both forage and grain. The corners of your irrigated circle are planted to smooth bromegrass. You want to graze the wheat and corners separately. How many **feet** of wire will you need to fence off the square and around the irrigated circle if the square is a quarter section in size? Assume you will use a single strand of wire for the fence.

Conversions:

1 acre = 43,560 square feet

1 mile = 5,280 feet

1 gallon = 128 fluid ounces

1 ton = 2,000 pounds

1 minute = 60 seconds

1 hour = 60 minutes

1 standard soybean or wheat bushel = 60 pounds

1 standard corn or grain sorghum bushel = 56 pounds

gallons per acre =
$$\frac{\text{gallons per minute} \times 5940}{\text{miles per hour} \times \text{nozzle spacing in inches}}$$

