**Agronomy Test Bank**

**2023**

1. If a plant continues to produce more leaves and stems after it has begun to flower, that growth habit is called which of the following:
	1. Dioecious
	2. Epinasty
	3. Determinate
	4. Monoecious
	5. **Indeterminate**
2. If a 10-25-10 fertilizer costs $450/U.S. ton (2,000 lbs in a U.S. ton), how much did you pay per pound of all the nutrients present (round to nearest penny)?
	1. $.27/lb
	2. **$.50/lb**
	3. $.89/lb
	4. $1.01/lb
3. Which of the following is a plant available form of nitrogen?
	1. N2
	2. NH3
	3. **NO3**
	4. NO2
	5. NO
4. Which of the following plants are considered examples of pulses?
	1. Barley, rye, rice
	2. White clover, alfalfa, crimson clover
	3. Canola, flax, corn
	4. **Peas, lentils, dried beans**
5. The hilium of a bean sees is what?
	1. The thin shell covering of the seed
	2. Where the radicle first emerges from a germination seed
	3. **Where the seed is attached to the pod**
	4. Where the first leaves form
6. Corn is an example of what type of plant?
	1. Dicot
	2. **Monoecious plant**
	3. Dioecious plant
	4. Legume
	5. Gynoecious
7. How many acres are in one section?
	1. 160 acres
	2. **640 acres**
	3. 333 acres
	4. 400 acres
8. In cool moist springs, the ergot fungus can infect the floret of certain grasses and develops a fruiting body, hard dry sclerotium inside the husk of the floret. This blackish sclerotia mimics to some degree the grain produced by the grass crop. The most common grain infected and one that can impact bread making is which of the following?
	1. Wild rice
	2. Oats
	3. **Rye**
	4. Corn

Using the following information answer the next five questions (21-25). John, a farmer in Missouri, is planting a field of corn which measures 2026’ by 1400’. He will use a no-till planter and apply fertilizer at the same time that he seeds the field using both a liquid broadcast sprayer mounted ahead of the planter and dry fertilizer placed in a band 2 inches to the side and 2 inches below the seed. The broadcast liquid fertilizer will be at a rate of 8 gallons per acre of 30% UAN (urea-ammonium nitrate solution with a density of 10.83 lbs/gallon and having 3.25 lb N/gallon) at a cost of $0.57/lb of nitrogen. His banded dry starter fertilizer is 11-52-0 that costs $600/ton and will be applied at 25 pounds per acre. He has a target population of 34,000 plants per acre for this irrigated corn field. His corn seed lot tested 90% germination guaranteed so he figures that he will need to plant 38,000 seeds per acre to ensure obtaining a final population of 34,000 plants/acre. A bag of corn contains 80,000 kernels.

1. How many acres are in the field John is planting?
	1. 12.1
	2. 35.9
	3. **65.1**
	4. 75.6
2. How many total pounds of nitrogen did John apply during the seeding operation as broadcast liquid fertilizer plus banded dry fertilizer?
	1. 2.75/lbs N/Acre
	2. 14.5 lbs N/acre
	3. 26.0 lbs N/acre
	4. **28.75 lbs N/acre**
3. How many total pounds of phosphorus (P2O5) did Jon appy during the seeding operation?
	1. **13.0 lbs P2O5/acre**
	2. 26.0 lbs P2O5/acre
	3. 35.88 lbs P2O5/acre
	4. 38.08 lbs P2O5/acre
4. What is the cost per acre of the total starter fertilizer package that John is applying during the seeding operation (broadcast and banded)?
	1. $42.03/acre
	2. **$22.32/acre**
	3. $14.82/acre
	4. $7.50/acre
5. How many bags of corn seed should John order from his local co-op? (Round up to the next whole bag if fractionally above a whole number.)
	1. **31 bags**
	2. 28 bags
	3. 25 bags
	4. 34 bags
6. The fixation of nitrogen from the atmosphere occurs in which group of plants?
	1. Cereal grains such as wheat barley, oats
	2. **Legumes such as clovers, eas, alfalfa, beans**
	3. Vegetable crops such as carrots
	4. Oilseed crops such as canola
7. Which soil structure would be typical for a good seed bed?
	1. Massive
	2. Platy
	3. **Granular**
	4. Blocky
8. Of the following practices, which one is more important to follow to insure the safety of pollinating bees?
	1. Avoid unnecessary insecticide use
	2. Use low hazard insecticide formulations
	3. Time spray application when bees are inactive
	4. **All of the above**
9. Lodging in grains tends to happen because a grower has applied an exceaa of which nutrient when growing conditions are good?
	1. Sulfur
	2. Potassium
	3. Phosphorous
	4. **Nitrogen**
10. Ginned cotton is cotton that has undergone what?
	1. **Had the seed removed**
	2. Boll opening
	3. Flowering
	4. Has had a defoliate applied
11. Some weeds show herbicide resistance because:
	1. Weeds are finding ways to reproduce in different methods
	2. **The same herbicide has been used year after year**
	3. More organix farming is taking place
	4. Their seeds live in the soil for many years
12. How are loess soils deposited?
	1. **Wind**
	2. Glacier
	3. Water
	4. Equipment
13. pH is the measurement of the concentration of what ion in the soil?
	1. Hydroxide
	2. **Hydrogen**
	3. Phosphorus
	4. Helium
14. What is the conversion of ammonium to nitrate known as?
	1. Ammonification
	2. Denitrification
	3. Mineralization
	4. **Nitrification**
15. What are national regulatory agencies regulating manure applications most concerned about?
	1. **Excessive phosphorus**
	2. phosphorus deficiency
	3. Excessive potassium
	4. Potassium deficiency
16. What do the 4R’s of fertilizer application refer to?
	1. The Right Price, Right Brand, Right Rate, Right Place
	2. The Right source, Right Rate, Right Price, Right Form
	3. **The Right source, Right Rate, Right Time, Right Place**
	4. The Right Price, Right Rate, Right Form, Right analysis
17. Visual symptoms of zinc deficiency usually appear as:
	1. **Chlorosis**
	2. Twisted stems
	3. Pale foliage on older leaves first
	4. Stem pitting
18. Select the condition that could help reduce pedticide volatilization
	1. High air temperatures
	2. Low relative humidity
	3. **Incorporation**
	4. Small droplets
19. What type of flowering plant takes 12-24 months to complete its life cycle? It grows vegetative the first year and then reproduces the second year.
	1. Annual plant
	2. **Biennial plant**
	3. Triennial plant
	4. Perennial plant
20. Which type of insecticide moves throughout the plant?
	1. Photosynthetic
	2. **Systemic**
	3. Contact
	4. Juvenile
21. Spray drift is the least when which of the following conditions exist?
	1. Droplet size increases, wind speed increases
	2. Droplet size decreases, wind speed decreases
	3. Droplet size decreases, wind speed increases
	4. **Droplet size increases, wind speed decreases**
22. Which of these is an example of biological aphid control?
	1. Using an insect growth regulator
	2. **Introduction and protection of natural predators**
	3. Destroying all natural predators
	4. Setting and maintaining traps
23. How does soil texture influence the development of soil compaction?
	1. **Clay soils are more likely to suffer compaction than are sandy soils**
	2. Sandy soils are quite subject to compaction when dry
	3. It is basically impossible to compact a silt loam
	4. The amount of water present is far more important that its textural class
24. The point at which soil holds moisture so tightly that plants cannot extract it is called?
	1. **The permanent wilting point**
	2. The drought point
	3. Field capacity
	4. The transient wilting point
25. What is a horizontal layer of soil, created by soil forming processes, that differ in physical or chemical properties from adjacent layers called?
	1. Hardpan
	2. **Soil horizon**
	3. Fragipan
	4. Tillage pan
26. \_\_\_\_\_\_\_\_\_\_ is an eroded material deposited by running water including gravel, sand, silt and clay.
	1. Bedrock
	2. Glacial till
	3. A loess deposit
	4. **An alluvial deposit**
27. Nutrient leaching is most likely to occur in what soil type?
	1. Silt clay soil
	2. Clay soil
	3. Compacted soil
	4. **Sandy soil**
28. Which system uses a constellation of orbiting satellites to identify a location on Earth based on longitude and latitude coordinates along with altitude?
	1. Geographic directional coordinates (GDC)
	2. Variable Rate Technology (VRT)
	3. **Geographic Information System (GIS)**
	4. National Air and Space Association (NASA)
29. At which stage of growth should plnt tissue samples should be taken?
	1. Sufficiently in advance of fertilization to allow time for anlysis and return of results from the lab
	2. Any time before bloom
	3. Early season shortly after emergence
	4. **the stage that corresponds to those used to develop interpretive guidelines**
30. In small grain production, jointing refers to which of the following?
	1. Tiller production
	2. The head is in the boot
	3. **The first node is visible above the soil surface**
	4. The flag leaf has emerged
31. What is the growth of a plant toward any stimulus called?
	1. **Tropism**
	2. Hormones
	3. Receptors
	4. Vernalization
32. A \_\_\_\_\_\_\_\_\_\_\_ plant has a fibrous root system and parallel venation.
	1. Annual
	2. Biennial
	3. Dicot
	4. **Monocot**
33. World-wide, soils have been classified into soil orders or types (Soil Taxonomy). How many soil types are recognized in the system of taxonomic soil classification (SSSA Soil Types)?
	1. 3
	2. **12**
	3. 14
	4. 6
34. One soil type has a high amount of clay and shrinks and swells at dramatic rates causing huge cracks in the soil when dry. They are not good for roads and buildings but are highly fertile. What soil type is this?
	1. **Vertisols**
	2. Ultisols
	3. Entisols
	4. Gelisols
35. The letter R is used in some soil profile descriptions. What does the R stand for?
	1. Residuum
	2. Restriction layer
	3. **Rock layer**
	4. Volcanic ash layer
36. As an agronomist a farmer has ask you to evaluate a field to know what texture it is. You get a sample of soil and press it between thumb and forefinger and it is grainy and does not make a ribbon. What would be your evaluation?
	1. It is high in clay
	2. It is a silt clay loam
	3. **It is a coarse sandy loam**
	4. It will work for building a pond
37. A fertilizer spreader has an effective application width of 37.5 feet. If 21.6 pounds of fertilizer is collected from the spreader in 60 seconds. When traveling 6.8 mph, what is the rate of fertilizer that is being applied per acre with this spreader?
	1. 3.2
	2. 11.1
	3. **41.9**
	4. 54.5
38. A wheat farmer is budgeting expenses for his coming growing season as this time he projects his total expenses to be $412.80 per acre. His average wheat yield is 80 bu/ac. What is his breakeven price per bushel?
	1. **$5.16**
	2. $5.20
	3. $6.49
	4. $7.74
39. UAN fertilizer at 28% nitrogen costs $226.50 per ton. The liquid fertilizer weighs 10.67 pounds per gallon. What is the per pound cost for the nitrogen?
	1. $0.37/pound
	2. **$0.40/pound**
	3. $0.55/pound
	4. $0.63/pound

Using the following information answer the next five questions (8-12).

Traci is making plans to seed her field to winter six-row malting barley on her farm in Maryland. The field is capable of producing 135 bu/acre under irrigation. The field has a center pivot irrigation system with eight 156 ft spans and an end gun that effectively reaches 50 ft. Traci will plant in concentric circles under the pivot and leave the dry corners fallow. She is targeting 1.25 million plants per acre, the seed she had purchased has 13,500 seeds per pound and 92% germination. Barely weighs 48 pounds per bushel. Total nitrogen for the crop will be 1.2 pounds of nitrogen per bushel of grain. She plans on applying 30 pounds of nitrogen broadcast preplant and the remainder in two spring (top-dress) applications. Soil tests were used to make fertilizer recommendations, the recommendations call for 83.7 pounds of P2O5 and 47.3 lbs/ac K20 to be broadcast preplant.

1. What is the area of Traci’s field?
	1. .19 acre
	2. 112.3 acres
	3. **121.4 acres**
	4. 485.8 acres
2. What will be the total nitrogen program per acre be?
	1. 132 pounds of N per acre
	2. **162 pounds of N per acre**
	3. 178 pounds of N per acre
	4. 192 pounds of N per acre
3. What is Traci’s target seeding rate?
	1. 85.2 pounds per acre
	2. 92.6 pounds per acre
	3. **100.6 pounds per acre**
	4. 112.3 pounds per acre
4. How much 0-0-60 will Traci need to apply preplant?
	1. **78.8 pounds per acre**
	2. 83.7 pounds per acre
	3. 111.1 pounds per acre
	4. 139.5 pounds per acre
5. If Traci uses UAN 28-0-0 for her spring nitrogen applications, how many total gallons of UAN per acre will she need for her split spring top-dress applications? (1 gal UAN weighs 10.67 pounds)
	1. 10.0 gallons/ac
	2. 17.2 gallons/ac
	3. 23.8 gallons/ac
	4. **44.2 gallons/ac**