

2009 State FFA Agronomy CDE

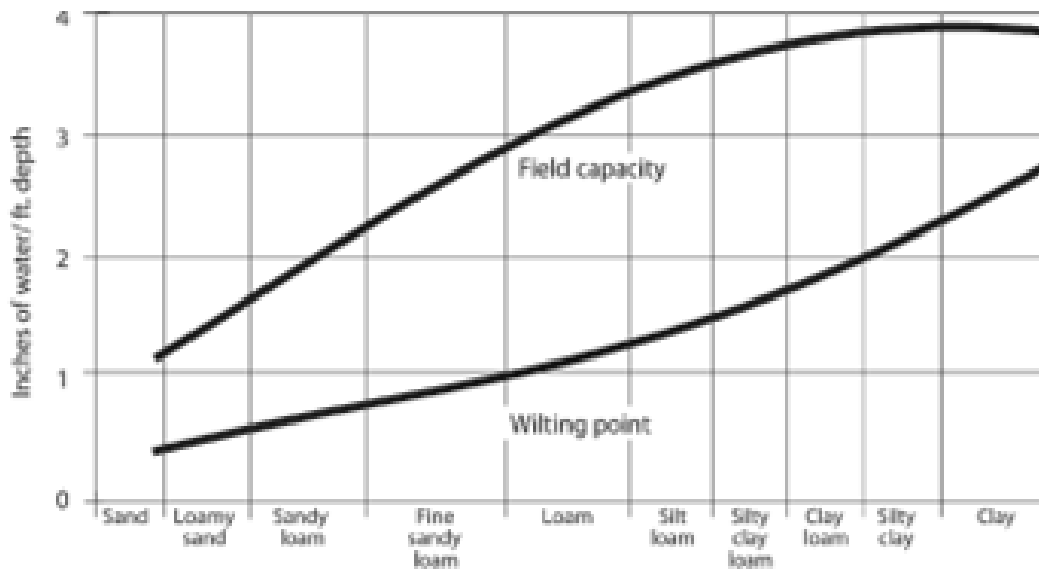
Written Test

25 questions

Chose the most correct answer.

- 1) Which of the following statements best matches a DANGER signal word?
  - A) Fatal if swallowed.
  - B) May cause skin irritation.
  - C) Harmful or fatal if swallowed.
  - D) May be harmful if breathed.
  
- 2) Which of the following is an example of a chemical name?
  - A) Command 3ME
  - B) Roundup UltraMax
  - C) Clomazone
  - D) 4-(2,4-Dichlorophenoxy) butyric acid
  
- 3) Which of the following masks would give the most protection from pesticide exposure?
  - A) Cartridge filter respirator
  - B) Dust masks
  - C) Canister filter respirator
  - D) Air-supplied respirator
  
- 4) Under which of these conditions would be best for pesticide application?
  - A) Winds greater than 10 MPH.
  - B) Temperature above 95 F
  - C) Slight surface moisture
  - D) Temperature below 50 F
  
- 5) When dealing with a pesticide spill what are the “three C’s”?
  - A) Clear area, Call 911, Control runoff
  - B) Control situation, Contain spill, Cleanup
  - C) Contain, Converse, Control media
  - D) None of these are correct.
  
- 6) Which of the following is an example of ground water?
  - A) river
  - B) pond
  - C) drainage ditch
  - D) aquifer
  
- 7) Which of the following would help avoid heat stress while working with pesticides?
  - A) Drink plenty of water
  - B) Take breaks in the shade
  - C) Avoid spraying in the heat of the day
  - D) All of the above

- 8) Chemicals emitted by an organism to influence the behavior of other organisms of the same species are called \_\_\_\_\_.
- A) Parasites
  - B) Pheromones
  - C) Pyrethroids
  - D) Surfactants
- 9) What is the minimum distance that a pesticide storage facility should be located from a well?
- A) 50 feet
  - B) 150 feet
  - C) 100 feet
  - D) 300 feet
- 10) A pesticide's ability to break down slowly and remain in the environment for a long time refers to its \_\_\_\_\_.
- A) persistence
  - B) adsorption
  - C) solubility
  - D) runoff



**Figure 1-6** Available water capacity for 10 soil textures—inches of water/foot of soil.

- 11) Using Figure 1-6 which of the following statements are true?
- A) Clay soils have little water holding capacity.
  - B) Sandy soils hold more water.
  - C) Sandy soils dry quickly.
  - D) Clay soils wilt plant more quickly.

**Table 4-2: Effects of Drought on Corn Yield During Several Stages of Growth.\***

Stage of Development	Percent Yield Reduction
Early vegetative	5 to 10
Tassel emergence	10 to 25
Silk emergence, pollen shedding	40 to 50
Blister	30 to 40
Dough	20 to 30
* After four consecutive days of visible leaf wilting.	

12) Use Table 4-2 for this question. Your corn crop yields 204 bushels per acre under normal conditions. A drought occurs during the pollen shedding. What can you expect your corn yields to be?

- A) 204-210 bushels per acre
- B) 122-102 bushels per acre
- C) 142-122 bushels per acre
- D) 204 bushels per acre

13) A local farmer wants to apply a total of 200 pounds of nitrogen per acre on his corn field. He has spread 9.5 tons per acre of dry manure with an average analysis of 10 pounds of nitrogen per ton. How many additional pounds of nitrogen must he apply?

- A) 105
- B) 110
- C) 283
- D) None. He has applied enough already.

14) The primary source of error from a soil test is

- A) laboratory analysis
- B) field sampling technique
- C) soil that is too wet
- D) none of the above

15) What part of a plant cell contains non-nuclear DNA?

- A) mitochondria
- B) nucleus
- C) chloroplasts
- D) cell wall

16) Tomato spotted wilt is a disease of tomato, potato and several other crops. It is caused by a \_\_\_\_\_.

- A) virus
- B) bacteria
- C) fungi
- D) mycoplasma

17) If the recommended seeding rate for wheat is 13 to 21 seeds per foot within a 7 inch row, what would happen if the rate was increased to 60 seeds per foot within a 7 inch row?

- A) nothing would occur
- B) disease and lodging would increase
- C) increased yield would result in better straw
- D) an increase in tiller numbers

18) Prolonged application of animal manures and biosolids can result in a buildup of which of these nutrients?

- A) Nitrogen
- B) Potassium
- C) Zinc
- D) Phosphorus

**Table 4-16:** Nitrogen Recommendations Based on Yield Potential and Previous Crop.

Previous Crop	Corn Yield Potential (bu/acre)					
	80	100	120	140	160	180+
	Pounds of N to Apply per Acre					
Corn and most other crops	80	110	140	160	190	220
Soybeans	50	80	110	130	160	190
Grass sod	40	70	100	120	150	180
Established forage legume <sup>1</sup>						
Average stand (3 plants/ft <sup>2</sup> )	0	10	40	60	90	120
Good stand 5 plants/ft <sup>2</sup> )	0	0	0	20	50	80
Annual legume cover crop <sup>2</sup>	50	80	110	130	160	190

<sup>1</sup> Any legume established for more than one year.

<sup>2</sup> Any legume or legume-grass mixture that has been established for less than a year.

19) Use Table 4-16 for this question. Your corn yield potential is 160 bushels per acre. You are plowing under a good stand of established red clover. How much 34-0-0 do you need to apply to meet the recommendation?

- A) 50 pounds
- B) 147 pounds
- C) 160 pounds
- D) 90.34 pounds

20) Use Table 4-16. You are planting corn following soybeans on reclaimed mine soils with a corn yield potential of 120 bushels per acre. You have applied 4.5 Dry Tons of biosolids to this field providing 18 pounds of nitrogen per dry ton. How much 46-0-0 do you need to meet the remainder of the nitrogen requirement?

- A) 63 pounds
- B) No 46-0-0 is required.
- C) 29 pounds
- D) 110 pounds

21) You are applying Prowl 3.3 EC as a band application. Your nozzles are 36 inches apart. Your band width is 15 inches. You are travelling 5.4 MPH using 12 gallons of spray per acre. What is your nozzle output?

- A) 0.39 GPM
- B) 0.16 GPM
- C) 0.33 GPM
- D) 0.25 GPM

<b>Table 5-6: Phosphate (P<sub>2</sub>O<sub>5</sub>) Recommendations for Soybeans.</b>					
<b>Soil test ppm (lb/acre)</b>	<b>Yield Potential—bu/acre</b>				
	<b>30</b>	<b>40</b>	<b>50</b>	<b>60</b>	<b>70</b>
	<b>lb P<sub>2</sub>O<sub>5</sub> per acre</b>				
5 (10) <sup>1</sup>	75	80	90	100	105
10 (20)	50	55	65	75	80
15-30 (30-60) <sup>2</sup>	25	30	40	50	55
35 (70)	10	15	25	25	30
40 (80)	0	0	0	0	0
1 Values in parentheses are lb/acre.					
2 Maintenance recommendations are given for this soil test range.					

22) Your soybean yield potential is 60 bushels per acre. Your soil test value is 35 ppm. How much 0-46-0 do you need to apply per acre to meet the recommendation?

- A) 54.4 pounds
- B) 25 pounds
- C) 46 pounds
- D) 105 pounds

- 23) One of the best ways to avoid herbicide resistance from occurring is to:
- A) Continue to use the same herbicide, just at higher rates.
  - B) Let weeds that have escaped go to seed.
  - C) Use different types of herbicides to control weeds
  - D) Rotate to a different crop but use the same herbicide
- 24) Which of the following crops which consumes the most nitrogen whether as commercial fertilizer or as biologically fixed nitrogen?
- A) Corn
  - B) Potatoes
  - C) Alfalfa
  - D) Strawberry
- 25) The endosperm is \_\_\_\_\_ to an emerging seed.
- A) The starchy food source
  - B) The first root
  - C) Protection for the plumule
  - D) The embryo

2009 Ohio FFA Agronomy CDE  
Written test key

- 1) A
- 2) D
- 3) D
- 4) C
- 5) B
- 6) D
- 7) D
- 8) B
- 9) C
- 10) A
- 11) C
- 12) B
- 13) A
- 14) B
- 15) A
- 16) A
- 17) B
- 18) D
- 19) B
- 20) A
- 21) B
- 22) A
- 23) C
- 24) C
- 25) A



**2007 State FFA Agronomy CDE  
March 31, 2007**

**Choose the most correct answer. Please make sure that you have bubbled in your school code and your name. This exam is yours to keep. You may write on it.**

**Please do not write on the provided resource material!**

Questions 1-6 are from Applying Pesticides Correctly.

- 1) Which of the following best matches a Danger signal word?
  - A) harmful or fatal if swallowed
  - B) may cause skin irritation
  - C) causes permanent eye damage
  - D) harmful if taken internally
  
- 2) When talking about pesticide formulations, which of the following is true?
  - A) EC formulations require agitation.
  - B) WP formulations can be abrasive to spray equipment.
  - C) RTU formulations need to be mixed.
  - D) G formulations are very hazardous to the applicator.
  
- 3) Which of the following is a trade name?
  - A) primosulfuron
  - B) clomazone
  - C) paraquat
  - D) Command 3ME
  
- 4) The pest toward which control measures are being directed is referred to as the \_\_\_\_\_ pest.
  - A) target
  - B) endangered
  - C) non-target
  - D) systemic
  
- 5) Which of the following is not a factor in a chemical's ability to contaminate ground water?
  - A) persistence
  - B) adsorption
  - C) solubility
  - D) microbial breakdown
  
- 6) When referring to Restricted Use Pesticides, which of the following statements is true?
  - A) Anyone can purchase them, but the applicator must be licensed.
  - B) Only certified applicators may purchase them, but anyone can apply them.
  - C) Only certified applicators may purchase or apply them.
  - D) None of the above

Please use the provided Agronomy Guide to solve questions 7-13.

7) When planning to produce corn on mine soils, which soil type should be avoided?

- A) Fairpoint
- B) Farmerstown
- C) Morristown
- D) Bethesda

8) Use Table 5-4 on page 64 for this problem. You are planting soybeans with a maturity rating of 4.2 on June 1 in southern Ohio. Your field measures 1750 ft. X 2450 ft. If your soybeans achieve maximum yield potential and the cash price at harvest is \$5.85, what will be your income for the field?

- A) \$28,790
- B) \$25,798
- C) \$10,237
- D) \$ 292

9) Use all Tables on pages 25-26 for this question. Your buffer pH is 6.0 and you want your mineral soil at a pH of 6.5. You can get wastewater lime free. You are planning to chisel plow at a depth of 6 inches. How much of the wastewater lime do you need to apply per acre?

- A) 1.4 tons
- B) 1 ton
- C) 5.4 tons
- D) 3 tons

10) A pH of 6.6 –7.3 is considered \_\_\_\_\_.

- A) slightly acidic
- B) slightly alkaline
- C) neutral
- D) strongly acidic

11) Using Figure 1-5 on page 6 a soil that is 30% sand, 40% silt and 30% clay would be classed as a \_\_\_\_\_.

- A) clay loam
- B) loam
- C) sandy clay loam
- D) clay

12) Using Figure 3-2 on page 20 which of the following nutrients is most limited in organic soils with a pH of 8.0?

- A) nitrogen
- B) calcium
- C) boron
- D) molybdenum

- 13) Using Table 3-2 on page 20 how much 0-0-60 do you need to apply per acre to replace the potassium (K<sub>2</sub>O) removed by an alfalfa crop that yields 4 ton per acre?
- A) 50 pounds
  - B) 200 pounds
  - C) 333 pounds
  - D) 1.12 tons

Use all provided resources to solve questions 14-20.

- 14) You are using a John Deere 4440 to pull a sprayer. The pressure is 45 psi. Your speed is 3.1 MPH. Your nozzles are 30 inches apart. You are applying 19 gallons of spray per acre. The air temperature is 52F. What is the nozzle output?

- A) 0.30 GPM
- B) 0.45 GPM
- C) 0.28 GPM
- D) 0.71 GPM

- 15) On which of these crops is Admire Pro not labeled for application?

- A) cranberry
- B) potato
- C) hops
- D) soybean

- 16) How is Admire Pro applied to potatoes?

- A) chemigation
- B) diluted spray on seed-pieces
- C) aircraft
- D) drip irrigation

- 17) Your treated broccoli crop was harvested on May 10, how soon could soybeans be planted?

- A) June 10
- B) soybeans can not follow application of Admire Pro
- C) July 1
- D) May 11

- 18) Your strawberry field is 800 ft. X 1289 ft. using the lowest labeled rate how much Admire Pro do you need to apply to the field to control whiteflies?

- A) about 1 gallon
- B) about 2 gallons
- C) about 3 gallons
- D) 0.75 gallons

19) After the application in question 18 you notice aphids are becoming a problem. How much Admire Pro do you apply per acre to control the aphids?

- A) 3.5 ounces
- B) 14.0 ounces
- C) 10.5 ounces
- D) 5 ounces

20) What is the buffer zone to streams for an Admire Pro application?

- A) 100 feet
- B) 33 feet
- C) 25 feet
- D) There is no buffer zone.

➤ **Questions 21-30 will be from the Auglaize County Soil Survey.**

21. What is the soil type at the intersection of Rts 197 and 116?

- A. Blount silt loam, 2 to 6 % slopes
- B. Glynwood, 2 to 6 % slopes
- C. Pewamo silty clay loam
- D. Coshocton silt loam, 2 to 6 % slopes

22. How many acres are there in Auglaize County of the soil type, Genesse silt loam, occasionally flooded?

- A. 27,750
- B. 645
- C. 3,571
- D. 2,890

23. How many acres are in the second field (lightly shaded area and square-shaped) north of St Rt 720 and East of St Rt 65?

- A. 17.9
- B. 10.5
- C. 1
- D. 43,560

24. What is the predominant soil type in this second field (lightly shaded area and square-shaped) north of St Rt 720 and East of St Rt 65?
- A. Glynwood silt loam, 2 to 6 % slopes
  - B. Blount silt loam, 2 to 6 % slopes
  - C. Morley clay loam, 6 to 12 % slopes
  - D. Millgrove clay loam
25. What is the main limitation for growing crops on a DoA soil type?
- A. Soil crusting
  - B. Soil tilth
  - C. Seasonal wetness
  - D. Occasional flooding
26. How many total acres are in Auglaize County?
- A. 1,274
  - B. 38,600
  - C. 255,936
  - D. 225,456
27. What is the expected corn yield for the soil type south of the intersection of Rts 66 and 219?
- A. 115 bushels
  - B. 130 bushels
  - C. 110 bushels
  - D. 125 bushels
28. Which month has the highest average precipitation?
- A. October
  - B. May
  - C. April
  - D. July

29. What is the expected winter wheat yield for the soil series, Haskins loam, 2-6 % slopes?

- A. 46
- B. 30
- C. 45
- D. 50

30. What is the soil texture of the surface layer of the Mp soil type?

- A. Clay loam
- B. Silt loam
- C. Silty clay
- D. Sandy loam

**Use the provided soil test recommendation sheet to answer questions 31-35.**

31. What is the Field ID?

- A. Back 40
- B. Bob's
- C. Sandy loam
- D. Canal field

32. What was the previous crop in this field?

- A. Corn
- B. Established legume with 2 plants/m<sup>2</sup>
- C. Winter wheat
- D. Soybean

33. How much 10-24-24 will be needed for the entire field to meet the build/maintenance fertilizer recommendation?

- A. 10.94 tons
- B. 3.88 tons
- C. 190 lbs/A
- D. 4.69 tons

34. How much nitrogen was applied per acre from the 10-24-24 in the previous question?

- A. 937.5 lbs nitrogen/A
- B. 12.5 lbs nitrogen/A
- C. 15.5 lbs nitrogen/A
- D. 13.5 lbs nitrogen/A

35. How much urea (46-0-0) will be needed for the entire field to meet the total nitrogen requirement when using the 10-24-24 in question 33?

- A. 22,418 tons
- B. 326 tons
- C. 12.2 tons
- D. 11.2 tons

**EXAM AND SOIL TEST KEY**

- 1. C
- 2. B
- 3. D
- 4. A
- 5. D
- 6. C
- 7. D
- 8. A
- 9. B
- 10. C
- 11. A
- 12. C
- 13. C
- 14. A
- 15. D
- 16. B
- 17. D
- 18. B
- 19. A
- 20. C
- 21. C
- 22. D
- 23. A
- 24. B
- 25. C
- 26. C
- 27. D

- 28. C
- 29. A
- 30. C
- 31. D
- 32. B
- 33. D
- 34. B
- 35. D

2005 State FFA Agronomy Career Development Event  
Agronomy Written Test  
April 2, 2005

**■ The answers to this test go in the area labeled exam.**

**■ Choose the best answer.** Good Luck!

**Questions 1-6 are from Applying Pesticides Correctly.**

- 1) The movement of a pesticide in water or another liquid downward through soil or other planting medium is called \_\_\_\_\_.
  - A) Runoff
  - B) Back-siphoning
  - C) Drift
  - D) None of the above
  
- 2) Pesticide poisoning may cause which of the following?
  - A) Chest pains
  - B) Headache
  - C) Muscle cramps
  - D) All of the above
  
- 3) Which of the following is most toxic?
  - A) A fungicide with an LD50 of 10,000
  - B) An insecticide with an LD50 of 250
  - C) Cigarette smoke with an LD50 of 95
  - D) A herbicide with an LD50 of 1200
  
- 4) The chemicals in a pesticide product that control the target pest are called the \_\_\_\_\_.
  - A) Active ingredient
  - B) Inert ingredient
  - C) Adjuvant
  - D) Solvent
  
- 5) What should you do if you have excess pesticide materials that are still usable after spraying?
  - A) Dump them down a drain
  - B) Find someone that can legally use them
  - C) Store in garage until next season
  - D) Take to landfill
  
- 6) What are the 3-C's of spill management? (In order, of course)
  - A) Clean up, Contain, Cost
  - B) Contain, Control, Clean up
  - C) Control, Contain, Clean up
  - D) Cost, Contain, Clean up

Use the provided Ohio Agronomy Guide to solve questions 7-13.

- 7) Which of the following diseases could be a problem when double cropping soybeans after canola?
- A) Phytophthora root rot
  - B) Sclerotinia stem rot
  - C) Septoria leaf blight
  - D) Take all disease
- 8) What soybean maturity groups are grown in southern Ohio in double crop systems?
- A) group 1
  - B) group 1 and early 2
  - C) group 2 and early 3
  - D) group 3 and early 4
- 9) Using Table 13-2 on page 81, which of the following species is best suited to rotational grazing in early spring?
- A) Red clover
  - B) Timothy
  - C) Switchgrass
  - D) None of the above are really suited to the situation.
- 10) Your field measures 824 ft. X 661 ft. You want a pure stand of red clover. The germination rate on the seed tag is 75%. How much seed do you need to apply to the **entire** field? (Use Table 13-3 on page 82 for recommended rates)
- A) 167 pounds
  - B) 125 pounds
  - C) 12.5 pounds
  - D) 16.7 pounds
- 11) Using Tables 7-2 (page 20) and 7-3 (page 21), how much ammonium nitrate do you need to apply per acre to make up for the amount of nitrogen removed from the wheat grain and straw?
- A) 196 pounds
  - B) 283 pounds
  - C) 373 pounds
  - D) 90 pounds
- 12) Which of the following management practices allows for earlier planting and promotes early crop development?
- A) Incorporation of phosphorus
  - B) Tile drainage
  - C) Buffers and filter strips
  - D) Delay application of all but starter nitrogen
- 13) Which wheat type is exclusively recommended for production in Ohio?
- A) Soft white spring
  - B) Durum
  - C) Hard red winter
  - D) Soft red winter

**Use all of the provided resources to solve questions 14-20.**

- 14) Which of the following insecticides should not be used along with Option herbicide in the same season?
- A) Aztec
  - B) Regent
  - C) Capture
  - D) Thimet
- 15) What rate of Option should be used to control ALS resistant giant ragweed?
- A) 1.5 ounces per acre
  - B) 1.75 ounces per acre
  - C) 1.5 pints per acre
  - D) None of the above.
- 16) When planting wheat following an Option application how long do you have to wait?
- A) 7 days
  - B) 14 days
  - C) 60 days
  - D) 6 months
- 17) You are doing a band application of Option. Your band width is 12 inches. The nozzles are 30 inches apart. You are applying 0.20 GPM. Your speed is 5 MPH. How many gallons of spray do you need per acre?
- A) 12.7
  - B) 19.8
  - C) 7.9
  - D) 10.2
- 18) Your field measures 1698 ft. X 1796 ft. You made an initial application of Option at 1.5 ounces per acre. Some weeds escaped and are beyond labeled weed heights requiring a second (rescue) application. How much Option do you need to cover the **entire** field with a second application?
- A) 140.7 ounces
  - B) 122.5 ounces
  - C) 105 ounces
  - D) 245 ounces
- 19) How many 2.5 gallon jugs of methylated seed oil do you need to purchase for the application in question 18?
- A) 6 jugs
  - B) 105 pints
  - C) 5 jugs
  - D) 13.1 gallons
- 20) Your research plots measures 30 ft. X 10 ft. There are three of them. The application rate is 0.525 ounces Active Ingredient (Foramsulfuron) per acre. How much Option do you need to apply to the total area?
- A) 0.031 ounces
  - B) 0.012 ounces
  - C) 0.525 ounces
  - D) 31 ounces