2018 State FFA Crops Contest
Pesticide Practicum

Name: _____
FFA Chapter: _____
Contestant No.: _____

For Questions 1-2, refer to Table 1 (Weed Response to Burndown Herbicides).

1. Which herbicide option is expected to provide greatest control of lambsquarters, giant ragweed, annual smartweed, and Canada thistle if applied in the spring prior to no-till soybean production? *(6 points)*
    a. 2,4-D
    b. Dicamba
    c. Glyphosate
    d. Glyphosate + 2,4-D

2. For a field with continuous no-till and a 2-year corn-soybean rotation, which herbicide option and application time is expected to provide greatest control of Canada thistle? *(6 points)*
    a. 2,4-D applied in the fall
    b. Glyphosate applied in the fall
    c. 2,4-D + dicamba applied in the spring prior to planting
    d. Glyphosate applied in the spring prior to planting

For Questions 3-4, refer to Tables 13-14 (Weed Response to Preplant/Preemergence Herbicides in Soybeans).

3. Which is true for a preplant application of Trifluralin compared to Command? *(6 points)*
    a. Greater risk of crop injury
    b. Poorer control of grasses is expected
    c. Poorer control of pigweed and waterhemp is expected
    d. Incorporation with tillage is necessary

4. Which herbicide is expected to provide greatest control of giant foxtail, common ragweed, lambsquarters, and waterhemp when applied preemergence in soybeans? *(6 points)*
    a. Boundary
    b. FirstRate
    c. Metolachlor
    d. Pursuit

For Questions 5-6, refer to Tables 15-16 (Weed Response to Postemergence Herbicides in Soybeans).

5. Which herbicide is expected to provide greatest control of crabgrass, giant foxtail, and yellow nutsedge when applied postemergence in Roundup Ready soybeans? *(6 points)*
    a. **Glyphosate 1.5 lb ae/A**
    b. Pursuit
    c. Assure II
    d. Poast

6. Which herbicide is expected to provide greatest control of cocklebur, kochia, and lambsquarters when applied postemergence in Roundup Ready soybeans? *(6 points)*
    a. Cobra
    b. Glyphosate 1.5 lb ae/A
    c. Pursuit
    d. Resource

For Questions 7-9, refer to the document "Precautions for Dicamba Use in Xtend Soybeans."

7. Precautions for avoiding injury to sensitive crops when using dicamba in Roundup Ready 2 Xtend soybeans include all but which of the following? *(7 points)*
    a. Applications should not be made if wind is blowing toward a sensitive crop located within 0.5 miles of the target field.
    b. Wind speeds should not exceed 10 miles/hour at the time of application.
    c. A buffer is needed when applying next to a sensitive crop.
    d. When tank-mixing glyphosate with dicamba, ammonium sulfate should be added to avoid antagonism from hard water.

8. Precautions for avoiding application of dicamba during a temperature inversion include all but which of the following? *(4 points)*
    a. Making applications only between sunrise and sunset.
    b Making postemergence applications rather than preplant applications.
    c. Avoiding applications when air temperature exceeds 80 degrees Fahrenheit.

9. Off-site movement of dicamba to sensitive crops can occur through: *(3 points)*
    a. Volatilization
    b Movement on dust particles
    c. Temperature inversions
    d Runoff water following rainfall
    e. All of the above

2018 State FFA Crops Contest
Fertilizer Practicum

Name: _____
FFA Chapter: _____
Contestant No.: _____

For Questions 1-4, use the guidelines for lime and fertilizing wheat and answer for a uniform 40-acre field in Beltrami County, MN (northwestern Minnesota) with mineral soils that will be planted to wheat. The 0-6 inch soil-test results for this field are:
5.8 pH (buffer); 9 ppm Bray phosphorus (P); 92 ppm potassium (K)

1. How much ag lime [with an effective neutralizing power (ENP) of 900 lb ENP/ton] should be applied to this 40-acre field? There are 2,000 lb/ton. *(6 points)*
   a. 133 tons
   b. 216 tons
   c. 267 tons
   d. 533 tons

2. How much DAP fertilizer (18-46-0) should be broadcast to meet the phosphorus needs of a wheat crop with a 75 bushel/acre yield goal? *(6 points)*
   a. 23 lb DAP/acre
   b. 50 lb DAP/acre
   c. 54 lb DAP/acre
   d. 109 lb DAP/acre

3. How much potash fertilizer (0-0-60) should be band-applied near the seed with a drill at planting to meet the potassium needs of a wheat crop with a 75 bushel/acre yield goal? *(6 points)*
   a. 24 lb potash/acre
   b. 67 lb potash/acre
   c. 108 lb potash/acre
   d. 125 lb potash/acre

4. How much urea fertilizer (46-0-0) should be broadcast to meet the nitrogen needs of a wheat crop with a 75 bushel/acre yield goal, given that the previous crop was soybean, there is 25 lb/acre of nitrate-nitrogen in the 0-2 foot depth of soil, and that 62 lb/acre of ammonium sulfate fertilizer [21-0-0+24(S)] has already been applied to this field to meet the anticipated sulfur (S) needs of this wheat crop? *(7 points)*
   a. 59.6 lb urea/acre
   b. 167.4 lb urea/acre
   c. 175.0 lb urea/acre
   d. 281.5 lb urea/acre

For Questions 5-9, use the fertilizer guidelines for corn and answer for a uniform non-irrigated field in Murray County, MN (southwestern Minnesota) with highly-productive medium-textured soils that will be planted to corn. The 0-6 inch soil-test results for this field are:

8 ppm Bray phosphorus (P); 110 ppm potassium (K); 4.2% organic matter

5. What fertilizer rate should be applied for maximum return to nitrogen (N), given that the previous crop was soybean, the fertilizer source is urea (46-0-0) with a price of $322/ton, and the anticipated value of corn is $3.50/bushel? There are 2,000 lb/ton. *(6 points)*
   - **a. 120 lb N/acre**
   - b. 140 lb N/acre
   - c. 155 lb N/acre
   - d. 261 lb N/acre

6. How much DAP fertilizer (18-46-0) should be broadcast to meet the phosphorus needs of a corn crop with a 200 bushel/acre yield goal? *(6 points)*
   - a. 41 lb DAP/acre
   - b. 90 lb DAP/acre
   - c. 120 lb DAP/acre
   - **d. 196 lb DAP/acre**

7. What percentage of years is application of phosphorus fertilizer unlikely to increase corn grain yield? *(3 points)*
   - a. 0%
   - **b. 17%**
   - c. 27%
   - d. 83%

8. How much potash fertilizer (0-0-60) should be band-applied near the seed at planting to meet the potassium needs of a corn crop with a 200 bushel/acre yield goal? *(6 points)*
   - a. 33 lb potash/acre
   - **b. 92 lb potash/acre**
   - c. 100 lb potash/acre
   - d. 196 lb potash/acre

9. How much potassium is expected to be removed from this field with harvest of a 200 bushel/acre corn crop? *(4 points)*
   - **a. 38 lb K_2O/acre**
   - b. 56 lb K_2O/acre
   - c. 714 lb K_2O/acre
   - d. 1,053 lb K_2O/acre

2018 State FFA Crops Contest – Variety Selection Practicum

Name: _____
FFA Chapter: _____
Contestant No.: _____

Answer the following questions based on the 2017 Oat Field Crop Trials Results that are provided. When yield data is needed, use the State 3-Year column in Table 3, unless otherwise specified.

1. The variety with the highest grain protein is:
   a. Antigo
   b. Deon
   c. Hayden
   d. Sumo

2. Which one of these varieties has the best lodging resistance?
   a. Antigo
   b. Deon
   c. Hayden
   d. Sumo

3. Which variety has the best crown rust resistance?
   a. Antigo
   b. Deon
   c. Hayden
   d. Sumo

4. Which of these four varieties had average or above average 2 Yr grain yield in all locations in 2017:
   a. Antigo
   b. Deon
   c. Hayden
   d. Sumo

5. Based on the State 3 Yr yield data in Table 3 how many varieties are statistically equivalent in yield with Deon?
   a. 3
   b. 7
   c. 11
   d. 15

6. Which of the following varieties has the worst smut rating?
   a. Badger
   b. Deon
   c. Newberg
   d. Saber

7. Which of the varieties below yielded better in 2017 than its 3 Yr average?
   a. Antigo
   b. Deon
   c. Natty
   d. Rockford

8 Suppose you wanted to raise a white-seeded variety but also sell the straw produced from your oat field and therefore wanted to select a taller variety, but still want lodging resistance of 4 or better and good yield. Which of these varieties would you choose?
   a. Deon
   b. Goliath
   c. Natty
   d. Rockford

9. If you wanted to select a variety for organic production and your criteria were, in order of importance: 1) crown rust resistance of 3 or better; 2) smut resistance of 1; and 3) grain yield, which of the following variety would you choose?
   a. Antigo
   b. Deon
   c. Hayden
   d. Sumo

10. Which is the highest yielding (based on statewide 3 Yr average in Table 3) oat variety that has BYDV resistance of 4 or better AND Lodging resistance of 4 or better.
   a. Deon
   b. Natty
   c. Newberg
   d. Rockford

Official Grain Grading Form

Crops Contest:

Grain Grading Problem #1

Student Name_____

Contestant Number _____

FFA Chapter _____

Crop: Hard Red Spring Wheat

Information	Number or Percent	Grading Factor	Grade
Dockage	0.3%	N/A	
Dark hard vitreous kernels	70%		Northern Spring
Test weight	61.2 lbs/bu	TWT	1
Other Factors:			
Hard white wheat	3.5%	Wheat of Other Classes (Total)	2
Shrunken and Broken kernels	2.3%	Shrunken and Broken Kernels	1
Sprouted hard red spring wheat	1.1%	DK	2
Scab (disease) damaged wheat	1.5%	DK	2
Foreign material	0.5%	FM	2
Ergot	0.1%		Ergoty
Total defects	2.3 + 0.5 + 2.6= 5.4%	Defects (Total)	3

Final Grade: U.S. No. 3 Northern Spring Wheat, Ergoty, Dockage 0.3%

Grading Factors:

Defects (Total)

Official Grain Grading Form

Crops Contest:

Grain Grading Problem #2

Student Name_____

Contestant Number _____

FFA Chapter _____

Crop: Corn

Information	Number or Percent	Grading Factor	Grade			
The sample consists of more than 95% Yellow Corn						
Test Weight	56.0	TWT	1			
Moisture	14.3%	N/A				
Dockage	N/A					
Other Factors:						
Heat-damaged kernels	0.1%	HD	1			
Mold-damaged kernels	3.0%	Dam. (TOT)	2			
Broken Corn and Foreign material	2.6%	BCFM	2			

Final Grade: U.S. No. 2 Yellow Corn

Grading Factors:

Damaged Kernels Total

Broken Corn and Foreign Material

_____

_____

_____

Official Grain Grading Form

Crops Contest:

Grain Grading Problem #3

Student Name_____

Contestant Number _____

FFA Chapter _____

Crop: Soybean

Information	Number or Percent	Grading Factor	Grade			
The sample consists of more than 95% Yellow Soybean						
Test Weight	60.0	N/A				
Moisture	11.1%	N/A				
Dockage	N/A					
Other Factors:						
Splits	3.0%	Splits	1			
Mold-damaged soybean	1.2%	Dam (tot)	1			
Foreign material	0.8%	FM	1			

Final Grade: U.S. No. 1 Yellow Soybeans

Grading Factors:

_____
_____
_____
_____
_____