

WRITTEN QUESTIONS – Team Event

NM Section (10 Questions):

1. What is the target soil pH for corn silage production?

Resource: University of Maryland Extension – Soil pH Management, SFM-5 (pg. 1)

- A. 5.2
- B. 5.6
- C. 6.5
- D. 7.0

2. How much lime per acre (lime specs in scenario) is needed to adjust the soil pH in this field?

Resource: USDA Soil Texture Triangle and University of Maryland Extension – Soil pH Management, SFM-5 (pg. 5, Table 2)

- A. 0 lb/acre
- B. 1000 lb/acre
- C. 2000 lb/acre
- D. 3000 lb/acre

3. What is the total nitrogen rate (lb N/acre) required to achieve the target corn silage production?

Resource: University of Maryland Extension – Agronomic Crop Nutrient Recommendations, SFM-1 (Table 2)

Calculation: $(\text{Yield Goal} - 20 \text{ Ton/Ac}) * 7 \text{ lb N/Add'l Ton} + 120 \text{ lbs N/Ac}$
 $(25 - 20) * 7 + 120$

- A. 120 lbs/ac
- B. 127 lbs/ac
- C. 140 lbs/ac
- D. 155 lbs/ac

4. How much UAN 28-0-0 (gal/acre) is currently planned for a sidedress nitrogen application based on the target silage yield?

Calculation: Broadcast: $65 \text{ lbs Urea} * 0.46 = 29.9 \text{ lbs N/acre}$
Starter: $6-18-18 = 10.6 * 20 * 0.06 = 12.7 \text{ lbs N/acre}$
UAN-28 = $10.62 * 2 * 0.28 = 5.9 \text{ lbs N/acre}$
ATS = $11.1 * 3 * 0.12 = 4 \text{ lbs N/acre}$
TOTAL Need: $120 + 5 * 7 = 155$
Sidedress: $155 - 29.9 - 12.7 - 5.9 - 4 = 102.5$
 $10.62 * 0.28 = 2.97 \text{ lb N/ gal-UAN28}$
 $102.5 / 2.97 = 34.51 \text{ gal UAN-28}$

- A. 25 gal/ac
- B. 30 gal/ac
- C. 35 gal/ac
- D. 40 gal/ac

5. What is the maximum recommended phosphorus rate (lb P₂O₅/acre) for corn silage production and did the applied fertilizer exceed this requirement?

Resource: University of Maryland Extension – Agronomic Crop Nutrient Management, SFM-1

Recommendation: $(25 \text{ Ton/A Goal} - 20 \text{ Ton/A Std}) * 2.5 + 35 \text{ lb P}_2\text{O}_5/\text{A} = 47.5$

Starter Applied: $10.6 * 20 * 0.18 = 38.16$

- A. 47.5 lbs/acre, No
B. 47.5 lbs/acre, Yes
C. 60 lbs/acre, No
D. 60 lbs/acre, Yes
6. What is the recommended potassium range (lb K₂O /acre) for corn silage production in this field?

Resource: University of Maryland Extension – Agronomic Crop Nutrient Management, SFM-1

Recommendation: Add $(25 \text{ Ton/A Goal} - 20 \text{ Ton/A Std}) * 7 = 35$ to Low Range from Table

- A. 80-150 lbs/acre
B. 115-185 lbs/acre
C. 150-250 lbs/acre
D. 185-285 lbs/acre
7. How much K₂O per acre was applied to this field?

Resource: Calculation – $300\text{lbs potash} * 0.60 = 180\# \text{ K}_2\text{O}$

Starter: $10.6 * 20 * 0.18 = 38.16$

$180 + 38.16 = 218.16$

- A. 180 lbs/acre
B. 218 lbs/acre
C. 300 lbs/acre
D. 338 lbs/acre
8. How many total pounds of fertilizer salt (lbs N + K₂O) per acre was applied in the 2x2 Starter Fertilizer?

Resource: Cornell University Cooperative Extension – Pop-up and Starter Fertilizers in Corn and Soybeans

Calculation: Add lbs of N and Lbs of K₂O per acre

Starter-N: $6-18-18 = 10.6 * 20 * 0.06 = 12.7 \text{ lbs N/acre}$

UAN-28 = $10.62 * 2 * 0.28 = 5.9 \text{ lbs N/acre}$

ATS = $11.1 * 3 * 0.12 = 4 \text{ lbs N/acre}$

Starter-K: $10.6 * 20 * 0.18 = 38.16$

$12.7 + 5.9 + 4 + 38.16 = 60.76 \text{ lbs N+ K}_2\text{O per acre}$

- A. 40 lbs N + K₂O /acre
B. 60 lbs N + K₂O/acre
C. 80 lbs N + K₂O /acre
D. 100 lbs N + K₂O /acre

9. What is the maximum amount of fertilizer salt ($N + K_2O$) per acre allowed in a 2x2 starter fertilizer application without causing injury? Did this application exceed this amount?

Resource: [Cornell University Cooperative Extension – Pop-up and Starter Fertilizers in Corn and Soybeans](#)

- A. 60 lbs $N + K_2O$ /acre, No
 - B. 60 lbs $N + K_2O$ /acre, Yes
 - C. 100 lbs $N + K_2O$ /acre, No
 - D. 100 lbs $N + K_2O$ /acre, Yes
10. Which soil test attribute could be a contributing cause to the issue at hand?
- A. Nitrogen Management
 - B. Phosphorus Management
 - C. Starter Fertilizer Management
 - D. None of the Above

SW Section (10 Questions):

1. What is the primary soil texture of this field?

Resource: [Virginia Cooperative Extension - Soil and Water Relationships, BSE-194P](#)

- a. Loamy Sand
- b. Loam
- c. Silt Loam
- d. Clay Loam

2. What is the average available water in % moisture for this soil texture?

Resource: [Virginia Cooperative Extension - Soil and Water Relationships, BSE-194P \(pg 4\)](#)

- a. 10
- b. 16
- c. 20
- d. 36

3. Which of these is not one of the four core soil health principles?

Resource: [Virginia Cooperative Extension - Agronomy Handbook 2024, pg 118-119](#)

- a. Minimize changes in the cropping system
- b. Minimize Soil Disturbance
- c. Maximize Living Roots
- d. Keep Soil Covered

4. Which of the following would have a negative impact on soil health?

Resource: [Virginia Cooperative Extension - Agronomy Handbook 2024, pg 116-117](#)

- a. Increasing soil organic matter
- b. Conservation Tillage
- c. All the above
- d. None of the above

5. What are the benefits of the 2023 fall-seeded cover crop?

Resource: [SARE – Managing Cover Crops Profitably](#)

- a. Retains moisture throughout the growing season
- b. Improves weed control
- c. Relieves impact of long term compaction
- d. All the above
- e. None of the above

6. Soil Compaction can cause all the following except:

Resource: [University of Delaware – Combating Soil Compaction](#)

- a. Poor Soil Structure
- b. Decreased density
- c. Reduced Pore Space
- d. All the above
- e. None of the above

7. What are typical symptoms of early season compaction?

Resource: [University of Delaware – Combating Soil Compaction](#)

- a. Slow water infiltration rates or ponding
- b. Stunted plants
- c. Restricted lateral root symptoms
- d. All the above
- e. None of the above

8. What influences soil compaction?

Resource: [University of Delaware – Combating Soil Compaction](#)

- a. Field operations (planting, tillage, harvest) on wet soils
- b. Heavy axle loads and excessive traffic patterns during harvest
- c. Reduced residue or soil organic matter
- d. All the above
- e. None of the above

9. What specific impact did the fall 2023 cover crop have on the 2024 silage crop?

- a. Excessive retention of soil moisture during the planting season
- b. Existing cover crop was difficult to terminate
- c. Increased insect pressure from cover crop impacting stand establishment
- d. All the above
- e. None of the above

10. Which aspect of Soil and Water Management could be a contributing cause to the customer concern?

- a. Soil Compaction
- b. Improved Soil Health
- c. Excessive Tillage
- d. Reduced Soil Erosion

CM Section (10 Questions):

1. Corn hybrid Comparative Relative Maturity (CRM) help growers select and compare hybrids, manage agronomic risk, and _____.

Resource: [Silage Zone Manual, pg 6](#)

- a. increase yield potential
- b. spread harvest timing
- c. select desired traits
- d. determine fertility needs

2. Seed companies calculate corn GDUs (Growing Degree Units) to predict crop development. The day you scouted the field, the daytime high temperature was 78 and the nighttime low temperature was 48. How many GDUs were accumulated during that day?

Resource: [Silage Zone Manual, pg 7-8](#)

GDU Base 50 = [(daily maximum temp in degrees Fahrenheit + daily minimum temp in degrees Fahrenheit)/2] – 50

$$((78+50)/2) - 50 = 14$$

- a. 12
- b. 13
- c. 14
- d. 16

3. Planting corn to a depth of 1.5-2" is optimal for:

Resource: [Silage Zone Manual, pg 19](#)

- a. Nodal root development
- b. Seminal root development
- c. Brace root development
- d. Growing point development above the soil surface

4. Sidewall compaction can occur in the seed furrow if the soil contains too much moisture at planting. What primary field observation would indicate sidewall compaction.

Resource: [Bayer Crop Science - Considerations for Corn Stand Establishment](#)

- a. Stand uniformity
- b. Planting depth
- c. Limited root growth
- d. Seed trench closure

5. What factors contribute to corn stand establishment?

Resource: [Bayer Crop Science - Considerations for Corn Stand Establishment](#)

- a. Soil temperature
- b. Seedbed condition
- c. Weather following planting
- d. A & B
- e. All of the above

6. Corn seedling diseases are usually favored by:

Resource: [Bayer Crop Science - Factors that Promote Corn Diseases](#)

- a. Wet and warm soil temperatures
- b. **Wet and cool soil temperatures**
- c. Dry and cool soil temperatures
- d. Dry and warm soil temperatures

7. To verify your drone counts, you did manual stand counts in one location on the west side of the field and counted 44 plants in 34 ft 10 in of row length. What is your estimated stand count per acre based on your manual counts?

Resource: [Silage Zone Manual, pg 23](#)

Calculation: $44/2=22$ (Length counted is twice the 17' 5" distance in chart so divide by 2)

- a. 18,300 plants/ac
- b. **22,000 plants/ac**
- c. 33,100 plants/ac
- d. 44,000 plants/ac

8. The primary agronomic factor to consider in deciding whether to replant corn is:

Resource: [Silage Zone Manual, pg 24-25](#)

- a. Plant density
- b. Plant uniformity
- c. Plant health
- d. Date of potential replanting
- e. **All of the above**

9. Silage tonnage (dry matter yield) is primarily a function of harvest timing, hybrid genetics (plant height & starch yield) and planting date. Which of these is the most important:

Resource: [Silage Zone Manual, pg 8](#)

- a. **Harvest timing because grain (starch) contributes about half the dry matter yield.**
- b. Hybrid genetics because genetics are the primary factor of overall yield potential.
- c. Planting date because the earlier you plant the longer the growing season.
- d. All are equally important

10. Which aspects of Crop Management directly impacted final plant population?

- a. Soil Conditions at planting
- b. Weather Conditions prior to planting
- c. Planter malfunction
- d. **A & B**

PM Section (10 Questions):

1. Gramoxone SL 3.0 Herbicide is classified as

Resource: [Gramoxone SL 3.0 Label](#)

- a. Caution
- b. Warning
- c. **Danger**
- d. Not Classified

2. Seed treatments offer an effective and efficient alternative to mechanical sprays (either applications to the soil or to the foliage) for the control of insects and diseases?

Resource: [Bayer Crop Science - Insect Management Benefits from Seed Treatments](#)

- a. False
- b. **True**

3. What rate of Acuron Flexi should be used pre-emergence for this field?

Resource: [Acuron Flexi Label](#)

- a. **2 quarts / acre**
- b. 1.35 quarts / acre
- c. 1.25 quart / acre
- d. 2.25 quarts / acre

4. Using your answer in question #3 and assuming a cost of \$60/gallon for Acuron Flexi and \$20/gallon for AAtrex, what is the total cost (of both products combined) per acre for the pre-emergent herbicide treatment?

Math: $(\$60/4 \times 2) + (\$20/8 \times 2) = \$35 / \text{acre}$

- a. \$25.25
- b. \$23.75
- c. \$38.75
- d. **\$35.00**

5. The active ingredients in Acuron Flexi are classified as Groups

Resource: [Acuron Flexi Label](#)

- a. 4, 2, and 27
- b. **27, 27, and 15**
- c. 27, 14, and 15
- d. 22, 27, and 6

6. Tar Spot is a relatively new disease in corn and is caused by the fungus *Phyllachora maydis*. This disease starts with last year's crop. The best timing for a labeled fungicide is at:

Resource: [University of Maryland - Thoughts on Tar Spot Management](#)

- a. At Emergence
- b. Early season applications (V4 – V6)
- c. **Late season applications (VT-R1)**
- d. Brown silk

7. Poncho 600 controls a wide variety of corn insect pests. For the rate applied, what pests are being controlled:

Resource: [Bayer Crop Science - Insect Management Benefits from Seed Treatments](#)

- a. Chinch bug, grubs, wireworms, and seedcorn maggot
- b. Grubs, corn earworm, cicadas, and armyworms
- c. Cutworms, grubs, Mexican corn rootworm, and billbug
- d. Grasshoppers, spider mites, fire ants, and grubs

8. What are typical symptoms of seedling blight?

Resource: [Bayer Crop Science - Corn Seedling Disease ID and Management](#)

- a. Wilting and/or death of plants
- b. Yellowing and stunted growth of plants
- c. Discolored brown to black mesocotyl and/or roots
- d. All The Above

9. Following the 2023 Pre and Post Herbicide Programs, the following crops can be planted the following spring (10 months later):

Resource: [Bicep II Magnum and Capreno Labels](#)

- a. Cotton, sorghum, wheat, or peanuts
- b. Rice, cotton, tobacco, or sorghum
- c. Potato, sorghum, corn, or soybeans
- d. Corn, sorghum, soybeans, or cotton

10. Which Pest Management issue could be a contributing cause to the observed issue?

- a. Weed Management – herbicide carryover
- b. Insect Management – soil insecticide performance
- c. Disease Management – seedling blight or tar spot
- d. None of the above

Diagnostic Summary – 10 Questions:

1. What impact does a reduction in stand have on Nitrogen Management?

Resource: [Reflect back to NM Section Question 4 and University of Maryland Extension – Agronomic Crop Nutrient Management, SFM-1 \(standard silage nitrogen rate @ 20 Ton/A\)](#)

- A. Eliminate Broadcast Urea Application
- B. Adjust Starter fertilizer to only 20 gal/acre 6-18-18 (remove UAN-28 and ATS from starter application)
- C. Adjust Sidedress UAN application to 20-25 gal UAN-28/acre
- D. No change is needed in Nitrogen Management

2. What impact could a Phosphorus fertilizer application below the maximum recommended rate have on stand establishment?

Resource: [ICCA Performance Objectives – NM 1.4, NM 3.6, NM 7.1a](#)

- A. No impact, if soil test values are adequate
- B. Reduced Root Development, if soil test levels are low
- C. Reduced Phosphorus Uptake resulting in purple leaf symptoms, if cold weather conditions are present
- D. All the Above

3. What is your recommendation to the grower on replanting?

Resource: [Bayer Crop Science - Corn Replanting Decisions](#)

- A. Spot Planting
- B. Keep the Stand
- C. Terminate and Replant the whole field to corn
- D. Terminate and Replant the whole field to forage sorghum

4. If the grower decides to keep the stand, at what population is corn not able to compensate from reduced competition within the row?

Resource: [Bayer Crop Science - Corn Replanting Decisions](#)

- A. 16,000
- B. 20,000
- C. 24,000
- D. 28,000

5. If the grower decides to terminate and replant the whole field, what additional recommendations would you provide to the grower to completely remove the old stand?

Resource: [Bayer Crop Science - Corn Replanting Decisions](#)

- A. Tillage
- B. Clethodim products labeled for removal of corn with labeled plant back considerations
- C. Glyphosate products labeled for removal of corn with immediate plant back
- D. Paraquat products labeled for removal of corn with immediate plant back

6. If the grower decides to spot plant, what is a primary consideration that he must consider?

Resource: [Bayer Crop Science - Corn Replanting Decisions](#)

- A. Size of areas with complete loss to replant
 - B. Additional inputs needed for these replant areas
 - C. Weather influences for later plant dates
 - D. Herbicide programs for these replant areas
7. If this year's crop had to be destroyed, considering the 2024 Pre-Herbicide application what crop could be immediately replanted?

Resource: [Acuron Flexi Label](#)

- A. Any crop
 - B. Any type of corn
 - C. Small grains or corn
 - D. Soybeans or corn
8. If this year's crop is maintained with a reduced stand, what additional crop protection would be recommended?

Resource: [ICCA Performance Objectives – CM 4.11](#)

- A. Review planned post herbicide program
- B. Scout for diseases and insects and apply fungicide and insecticide accordingly
- C. Both A and B
- D. None of the Above

9. How might harvest date be impacted in this scenario?

Resource: [Silage Zone Manual, pg 84-86](#)

- A. Shift Silage Harvest Earlier
- B. Shift Silage Harvest Later
- C. No Change in harvest timing
- D. Adjust harvest date based on whole plant moisture

10. What would be your best recommendation to reduce the risk of similar management issues in the future?

Resource: [ICCA Performance Objectives – SW 1.10, 1.12, 1.13, CM 1.2 and Virginia Cooperative Extension – Agronomy Handbook 2024, pg 118](#)

- A. Improve soil structure with continued use of cover crops
- B. Abandon the use of cover crops to minimize issues at planting
- C. Increase the use of tillage to reduce weed pressure and improve seed bed preparation
- D. Increase seeding populations to increase final stand counts