

AGRONOMY SEAMAN FFA PRACTICE TEST (SAMPLE)

STUDY GUIDE



Prepare with structure. Pass with confidence



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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

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- 1. What substance is primarily of concern regarding the quality of groundwater used for irrigation?**
 - A. E. coli bacteria
 - B. Salts
 - C. Pesticide residues
 - D. Nitrates

- 2. A crop consultant counts an average of 34 corn plants per 20-foot length of row planted in 30-inch rows. What is the estimated plant population in plants per acre?**
 - A. 29,620 plants/acre
 - B. 32,000 plants/acre
 - C. 25,000 plants/acre
 - D. 30,000 plants/acre

- 3. What is the primary purpose of the vertical tillage tool in agricultural practices?**
 - A. To completely invert the soil
 - B. To incorporate residue and alleviate compaction
 - C. To seed cover crops efficiently
 - D. To reduce pest populations in the soil

- 4. What is the standard test weight per bushel for corn?**
 - A. 48 pounds
 - B. 52 pounds
 - C. 56 pounds
 - D. 60 pounds

- 5. Which of the following factors can enhance soil fertility?**
 - A. Regular crop rotation
 - B. Excessive tillage
 - C. Overapplication of chemical fertilizers
 - D. Neglecting cover crops

- 6. What does "safened seed" refer to in grain sorghum production?**
- A. Seed treated with fungicide
 - B. Seed treated with insecticide
 - C. Seed treated with chemical to protect from herbicide
 - D. Seed treated for all of the above
- 7. What is the percent pure live seed (PLS) for a fescue seed with a germination rate of 80% and purity of 90%?**
- A. 60%
 - B. 72%
 - C. 80%
 - D. 90%
- 8. How is phosphorus most likely lost from crop fields, contributing to environmental harm?**
- A. Runoff into surface water
 - B. Leaching into groundwater
 - C. Volatilization into the atmosphere
 - D. All of the above
- 9. Which of the following is a disadvantage of sprinkler irrigation systems compared to furrow irrigation systems?**
- A. More uniform application of water with sprinkler
 - B. Less energy required to pump and distribute water with sprinkler
 - C. Lower labor costs with sprinkler
 - D. Less leaching losses with sprinkler
- 10. What is the sprayer application rate in gallons per acre if 25.6 fluid ounces of water is collected in 30 seconds from an individual nozzle?**
- A. 15 gal/acre
 - B. 17 gal/acre
 - C. 20 gal/acre
 - D. 12 gal/acre

Answers

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1. B
2. A
3. B
4. C
5. A
6. C
7. B
8. A
9. B
10. B

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Explanations

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1. What substance is primarily of concern regarding the quality of groundwater used for irrigation?

- A. E. coli bacteria
- B. Salts**
- C. Pesticide residues
- D. Nitrates

Salts are primarily of concern regarding the quality of groundwater used for irrigation because they can accumulate in the soil and affect plant health. When irrigation water contains high levels of salts, it can lead to soil salinization, which reduces water availability for plants and can ultimately damage crops. High salinity can impair seed germination, stunt growth, and reduce crop yields. This issue is especially critical in arid and semi-arid regions where evaporation rates are high and salts can concentrate in the soil. In contrast, while E. coli bacteria, pesticide residues, and nitrates are important pollutants that can impact water quality, they don't affect irrigation water quality to the same extent as salts do regarding widespread agricultural practices. Salinity's long-term impact on crop productivity makes it a priority for managing irrigation water quality.

2. A crop consultant counts an average of 34 corn plants per 20-foot length of row planted in 30-inch rows. What is the estimated plant population in plants per acre?

- A. 29,620 plants/acre**
- B. 32,000 plants/acre
- C. 25,000 plants/acre
- D. 30,000 plants/acre

To estimate the plant population in plants per acre based on the given information, we first need to calculate the number of rows of corn that can fit in an acre and then use the average number of plants per row. 1.

****Understanding the spacing:**** The rows are planted 30 inches apart. There are 43,560 square feet in an acre.

Since 30 inches is equal to 2.5 feet, we can determine the number of rows per acre by taking the total width of an acre in feet and dividing it by the row width: $\text{Rows per acre} = \frac{43,560 \text{ ft}^2}{2.5 \text{ ft}} = 17,424 \text{ rows}$

2. ****Calculating the number of 20-foot segments in an acre:**** Each row is 20 feet long, so we also need to calculate how many 20-foot segments fit into an acre: $\text{Segments per acre} = \frac{43,560 \text{ ft}^2}{20 \text{ ft}} = 2,178 \text{ segments}$

3. ****Using the average plant count:**** With an average of

3. What is the primary purpose of the vertical tillage tool in agricultural practices?

- A. To completely invert the soil
- B. To incorporate residue and alleviate compaction**
- C. To seed cover crops efficiently
- D. To reduce pest populations in the soil

The primary purpose of the vertical tillage tool is to incorporate residue and alleviate compaction. This tool operates in a manner that addresses soil health and structure by using specific mechanisms that promote minimal disturbance while effectively managing crop residue from previous harvests. Incorporating residue is essential in preserving moisture, improving soil structure, and enhancing microbial activity. By mixing leftover crop parts into the soil, vertical tillage helps create a conducive environment for the next crop. Furthermore, this method aids in alleviating compaction by loosening the upper soil layers, which is vital for maintaining good root growth and water infiltration. While soil inversion, seeding cover crops, and pest population reduction are important aspects of agricultural practices, they do not directly align with the fundamental function of vertical tillage tools. This focus on minimal disturbance and residue management is what sets vertical tillage apart as a beneficial practice in modern agronomy.

4. What is the standard test weight per bushel for corn?

- A. 48 pounds
- B. 52 pounds
- C. 56 pounds**
- D. 60 pounds

The standard test weight for corn is set at 56 pounds per bushel. This measure is essential as it reflects the density and quality of the corn grain. A higher test weight typically indicates better quality, as it implies that the corn kernels are heavier and denser, which often correlates with higher energy content and better performance in feed applications or processing. In agronomy and grain marketing, achieving this standard is crucial for farmers, as it impacts marketability and pricing. A test weight above the standard may offer a premium, while corn with a lower test weight could be discounted, affecting profitability. Thus, understanding the importance of test weight helps producers make informed decisions about harvesting and marketing their corn.

5. Which of the following factors can enhance soil fertility?

- A. Regular crop rotation**
- B. Excessive tillage
- C. Overapplication of chemical fertilizers
- D. Neglecting cover crops

Regular crop rotation is a practice that enhances soil fertility by promoting a diverse ecosystem within the soil and improving its structure and nutrient content. Different crops have varying nutrient requirements and contributions, meaning that when a farmer rotates crops, they can help replenish nutrients that one crop may deplete while enhancing the biological activity in the soil. This practice also breaks pest and disease cycles, contributing to healthier soil and, ultimately, improved yields. In contrast, practices such as excessive tillage can lead to soil degradation, loss of organic matter, and increased erosion, which negatively affect soil fertility. Overapplication of chemical fertilizers can lead to nutrient runoff and soil acidification, while neglecting cover crops can reduce the soil's organic matter and impede its ability to retain moisture and nutrients.

6. What does "safened seed" refer to in grain sorghum production?

- A. Seed treated with fungicide
- B. Seed treated with insecticide
- C. Seed treated with chemical to protect from herbicide**
- D. Seed treated for all of the above

In grain sorghum production, "safened seed" refers specifically to seeds that have been treated with a chemical designed to protect them from the effects of certain herbicides. This protective treatment allows producers to apply herbicides that might otherwise harm the sorghum crop, promoting better weed control without damaging the seedlings. The purpose of safening is to enable effective weed management strategies while ensuring that the grain sorghum plants can emerge and grow without injury from the herbicides used in the field. This practice is particularly beneficial in cases where a field has a high weed pressure or where specific herbicides are needed for effective weed control. Other seed treatments, such as those with fungicides or insecticides, do not relate directly to the concept of "safened seed" in the context of herbicide tolerance. While such treatments can be important for seed health and protection against pests, they do not specifically address the herbicide safety aspect that defines safened seeds.

7. What is the percent pure live seed (PLS) for a fescue seed with a germination rate of 80% and purity of 90%?

- A. 60%
- B. 72%**
- C. 80%
- D. 90%

To calculate the percent pure live seed (PLS), you need to use the formula: $\text{PLS} = \text{Purity} \times \text{Germination Rate}$ where purity is expressed as a decimal and the germination rate is also a decimal. In this case, the purity of the fescue seed is 90%, which converts to a decimal as 0.90. The germination rate is 80%, or 0.80 in decimal form. You then multiply these two values: $\text{PLS} = 0.90 \times 0.80 = 0.72$ To express this as a percentage, you simply multiply by 100: $0.72 \times 100 = 72\%$ Therefore, the percent pure live seed for the fescue seed with a germination rate of 80% and purity of 90% is indeed 72%. This calculation is crucial for agronomists and farmers as it informs them about the actual viability of the seed for planting. Understanding the concepts of germination and purity is essential in determining the effectiveness and potential yield of the crop.

8. How is phosphorus most likely lost from crop fields, contributing to environmental harm?

- A. Runoff into surface water**
- B. Leaching into groundwater
- C. Volatilization into the atmosphere
- D. All of the above

Phosphorus is most likely lost from crop fields through runoff into surface water. This process occurs when excess phosphorus, often from fertilizers or organic matter, is carried away during rainfall or irrigation events. When it rains, water can wash over the soil surface and transport phosphorus particles into nearby streams, rivers, and lakes. This runoff can lead to nutrient pollution, which stimulates the excessive growth of algae in water bodies, resulting in eutrophication. Eutrophication depletes oxygen in the water and can harm aquatic ecosystems, leading to fish kills and loss of biodiversity. While other processes such as leaching into groundwater or volatilization into the atmosphere do occur, they are not the primary pathways through which phosphorus is lost and contributes to environmental harm. Leaching typically involves soluble nutrients moving downward through the soil profile, which is less common for phosphorus due to its tendency to bind tightly to soil particles. Volatilization primarily affects nitrogen rather than phosphorus. Thus, runoff into surface water is the most significant mechanism in the context of phosphorus loss from agricultural fields.

9. Which of the following is a disadvantage of sprinkler irrigation systems compared to furrow irrigation systems?

- A. More uniform application of water with sprinkler
- B. Less energy required to pump and distribute water with sprinkler**
- C. Lower labor costs with sprinkler
- D. Less leaching losses with sprinkler

The statement highlighting less energy required to pump and distribute water with sprinkler systems is an important aspect to consider when evaluating irrigation methods. However, this does not accurately reflect the disadvantages of sprinkler systems compared to furrow irrigation systems. Sprinkler irrigation often requires more energy due to the need to pressurize water and distribute it through a network of pipes and sprinkler heads. This can lead to higher operational costs, particularly in situations where electricity or fuel is needed to power pumps. In contrast, furrow irrigation typically relies on gravity to move water down the rows of crops, which minimizes energy requirements and can be more cost-effective in terms of energy use. When analyzing the overall efficiency and costs associated with both irrigation methods, factors such as energy use, equipment maintenance, and labor should be studied in conjunction with crop needs and soil characteristics. Thus, the choice that considers energy requirements presents a more accurate portrayal of the comparative disadvantages between these irrigation systems.

10. What is the sprayer application rate in gallons per acre if 25.6 fluid ounces of water is collected in 30 seconds from an individual nozzle?

- A. 15 gal/acre
- B. 17 gal/acre**
- C. 20 gal/acre
- D. 12 gal/acre

To determine the sprayer application rate in gallons per acre, we first need to convert the collected fluid ounces to gallons and then adjust for the time it takes for the collection. Starting with the given information, we know that 25.6 fluid ounces of water is collected in 30 seconds. Since there are 128 fluid ounces in a gallon, we calculate the volume in gallons: $\frac{25.6 \text{ fluid ounces}}{128 \text{ fluid ounces/gallon}} = 0.2 \text{ gallons}$ Next, we need to calculate how many gallons would be applied in one acre based on the application field's width and the speed of application. Typically, sprayer nozzles have a specific output associated with their configuration (e.g., gallons per minute, or GPM). To find the application rate per minute, we can extrapolate from the 30 seconds of collection. Since there are 60 seconds in a minute: $0.2 \text{ gallons in 30 seconds} \times 2 = 0.4 \text{ gallons per minute}$ Next, to find out how much volume is applied per acre, we have to consider how many minutes it

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://argonomyseamanffa.examzify.com>

We wish you the very best on your exam journey. You've got this!

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