Registration form

Agricultural Pest Control CEU Training $200.00

48 HOUR RUSH ORDER PROCESSING FEE ADDITIONAL $50.00

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Start and finish dates: _____
You will have 90 days from this date in order to complete this course

Print Name_____
I have read and understood the disclaimer notice found on pages 2 and 4. Signature is required.

Signature _____

Address: _____

City_____ State _____Zip_____

Phone:
Home (_____) _____ Work (_____)_____

Fax (_____) _____ Email_____

License or
Operator ID #_____Exp. Date_____

Class/Grade_____

Please circle/check which certification you are applying the course CEU's.

Commercial Applicator____ Residential Applicator____ Industrial Applicator____

Pesticide Handler____ Agricultural Applicator____ Adviser____ Other _____

Your certificate will be mailed to you in about two weeks.

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Toll Free (866) 557-1746 Fax (928) 272-0747 Back-Up Fax (928) 468-0675
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Important Information about this Course (Disclaimer Notice)

This CEU course has been prepared to educate pesticide applicators and operators in general safety awareness of dealing with the often complex and various pesticide treatment sprays, devices, methods, and applications. This course (manual) will cover general laws, regulations, required procedures and accepted policies relating to the use of pesticides and herbicides. It should be noted, however, that the regulation of pesticides and hazardous materials is an ongoing process and subject to change over time. For this reason, a list of resources is provided to assist in obtaining the most up-to-date information on various subjects. This manual is a not a guidance document for applicators or operators who are involved with pesticides. It is not designed to meet the requirements of the United States Environmental Protection Agency or your local State environmental protection agency or health department. This course manual will provide general pesticide safety awareness and should not be used as a basis for pesticide treatment method/device guidance. This document is not a detailed pesticide informational manual or a source or remedy for poison control.

Technical Learning College or Technical Learning Consultants, Inc. makes no warranty, guarantee or representation as to the absolute correctness or appropriateness of the information in this manual and assumes no responsibility in connection with the implementation of this information. It cannot be assumed that this manual contains all measures and concepts required for specific conditions or circumstances. This document should be used for educational purposes only and is not considered a legal document. Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Confine chemicals to the property or plants being treated. Avoid drift onto neighboring properties, especially gardens containing fruits and/or vegetables ready to be picked. Dispose of empty containers carefully. Follow label instructions for disposal. Never reuse containers. Make sure empty containers are not accessible to children or animals. Never dispose of containers where they may contaminate water supplies or natural waterways. Do not pour down sink or toilet. Consult your county agricultural commissioner for correct ways of disposing of excess pesticides. You should never burn pesticide containers.

Individuals who are responsible for pesticide storage, mixing and application should obtain and comply with the most recent federal, state, and local regulations relevant to these sites and are urged to consult with the EPA and other appropriate federal, state and local agencies.

USE PESTICIDES WISELY: ALWAYS READ THE ENTIRE PESTICIDE LABEL CAREFULLY, FOLLOW ALL MIXING AND APPLICATION INSTRUCTIONS AND WEAR ALL RECOMMENDED PERSONAL PROTECTIVE GEAR AND CLOTHING. CONTACT YOUR STATE DEPARTMENT OF AGRICULTURE FOR ANY ADDITIONAL PESTICIDE USE REQUIREMENTS, RESTRICTIONS OR RECOMMENDATIONS.

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Rush Grading Service

If you need this assignment graded and the results mailed to you within a 48-hour period, prepare to pay an additional rush service handling fee of $50.00. This fee may not cover postage costs. If you need this service, simply write RUSH on the top of your Registration Form. We will place you in the front of the grading and processing line.

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Agricultural Pest Control Training

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Grading Information
In order to maintain the integrity of our courses we do not distribute test scores, percentages or questions missed. Our exams are based upon pass/fail criteria with the benchmark for successful completion set at 70%. Once you pass the exam, your record will reflect a successful completion and a certificate will be issued to you.

For security purposes, please fax or e-mail a copy of your driver's license and always call us to confirm we've received your assignment and to confirm your identity.

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Complete all topics before submitting the answers key.

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Agricultural Pest Control Answer Key

Name_____

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_____

Signature

Multiple Choice Exam. Pick only one answer per question. Circle or Mark off or Bold the answer.

Please circle the number of the assignment version 1 or 2 or 3 or 4 or 5

Topic 1 Pesticide Fundamentals Introduction

12 final exam questions. (s) Means answer can be singular or plural.

1.	A B C D E F	5.	A B C D E F	9.	A B C D E F
2.	A B C D E F	6.	A B C D E F	10.	A B C D E F
3.	A B C D E F	7.	A B C D E F	11.	A B C D E F
4.	A B C D E F	8.	A B C D E F	12.	A B C D E F

Topic 2 Agricultural Pesticide Application Information

15 final exam questions. (s) Means answer can be singular or plural.

1. A B C D E F
2. A B C D E F
3. A B C D E F
4. A B C D E F
5. A B C D E F
6. A B C D E F
7. A B C D E F
8. A B C D E F
9. A B C D E F
10. A B C D E F
11. A B C D E F
12. A B C D E F
13. A B C D E F
14. A B C D E F
15. A B C D E F

Topic 3 Common Pesticide Applications and Methods

17 final exam questions. (s) Means answer can be singular or plural.

1. A B C D E F
2. A B C D E F
3. A B C D E F
4. A B C D E F
5. A B C D E F
6. A B C D E F
7. A B C D E F
8. A B C D E F
9. A B C D E F
10. A B C D E F
11. A B C D E F
12. A B C D E F
13. A B C D E F
14. A B C D E F
15. A B C D E F
16. A B C D E F
17. A B C D E F

Topic 4 Decontamination and Emergency Requirements

14 final exam questions. (s) Means answer can be singular or plural.

1. A B C D E F
2. A B C D E F
3. A B C D E F
4. A B C D E F
5. A B C D E F
6. A B C D E F
7. A B C D E F
8. A B C D E F
9. A B C D E F
10. A B C D E F
11. A B C D E F
12. A B C D E F
13. A B C D E F
14. A B C D E F

Topic 5 Personal Protection Equipment

15 final exam questions. (s) Means answer can be singular or plural.

1. A B C D E F
2. A B C D E F
3. A B C D E F
4. A B C D E F
5. A B C D E F
6. A B C D E F
7. A B C D E F
8. A B C D E F
9. A B C D E F
10. A B C D E F
11. A B C D E F
12. A B C D E F
13. A B C D E F
14. A B C D E F
15. A B C D E F

Topic 6 Worker Protection Section

15 final exam questions. (s) Means answer can be singular or plural.

1. A B C D E F
2. A B C D E F
3. A B C D E F
4. A B C D E F
5. A B C D E F
6. A B C D E F
7. A B C D E F
8. A B C D E F
9. A B C D E F
10. A B C D E F
11. A B C D E F
12. A B C D E F
13. A B C D E F
14. A B C D E F
15. A B C D E F

Topic 7 Beneficial Insect Identification

18 final exam questions. (s) Means answer can be singular or plural.

1. A B C D E F
2. A B C D E F
3. A B C D E F
4. A B C D E F
5. A B C D E F
6. A B C D E F
7. A B C D E F
8. A B C D E F
9. A B C D E F
10. A B C D E F
11. A B C D E F
12. A B C D E F
13. A B C D E F
14. A B C D E F
15. A B C D E F
16. A B C D E F
17. A B C D E F
18. A B C D E F

Topic 8 Honey Bee Detailed Section

10 final exam questions. (s) Means answer can be singular or plural.

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

Topic 9 Africanized Honey Bee Section

10 final exam questions. (s) Means answer can be singular or plural.

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

Topic 10 Modern European Bee Hive Section

10 final exam questions. (s) Means answer can be singular or plural.

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

Topic 11 Bee Control Section

15 final exam questions. (s) Means answer can be singular or plural.

1. A B C D E F
2. A B C D E F
3. A B C D E F
4. A B C D E F
5. A B C D E F
6. A B C D E F
7. A B C D E F
8. A B C D E F
9. A B C D E F
10. A B C D E F
11. A B C D E F
12. A B C D E F
13. A B C D E F
14. A B C D E F
15. A B C D E F

Topic 12 Bee-Related Inspections Section

10 final exam questions. (s) Means answer can be singular or plural.

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

Topic 13 Wasp Identification

10 final exam questions. (s) Means answer can be singular or plural.

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

Topic 14 Common Crop Insects and Pesticide Controls

18 final exam questions. (s) Means answer can be singular or plural.

1. A B C D E F	7. A B C D E F	13. A B C D E F
2. A B C D E F	8. A B C D E F	14. A B C D E F
3. A B C D E F	9. A B C D E F	15. A B C D E F
4. A B C D E F	10. A B C D E F	16. A B C D E F
5. A B C D E F	11. A B C D E F	17. A B C D E F
6. A B C D E F	12. A B C D E F	18. A B C D E F

Topic 15 Cotton Insect and Related Pest Identification

4 final exam questions. (s) Means answer can be singular or plural.

1. A B C D E F	3. A B C D E F
2. A B C D E F	4. A B C D E F

Topic 16 - 1 node Ant Identification and Control Section

6 final exam questions. (s) Means answer can be singular or plural.

1. A B C D E F	3. A B C D E F	5. A B C D E F
2. A B C D E F	4. A B C D E F	6. A B C D E F

Topic 17 - 2 node Ant Identification and Control Section

6 final exam questions. (s) Means answer can be singular or plural.

1. A B C D E F	3. A B C D E F	5. A B C D E F
2. A B C D E F	4. A B C D E F	6. A B C D E F

Complete all topics before submitting the answers key

You are finished with your assignment. Please fax this answer key and your registration page along with the customer survey to TLC. Fax Number (928) 272-0747

Amount of Time for Course Completion – How many hours you spent on course?

Must match State Hour Requirement _____ (Hours)

Please fax or email this answer key and the registration Page to TLC. Call 15 minutes later to ensure we have received the paperwork

Assignment for Last Names *If your last name…*

A-G Assignment #1 - pages 11-42
H-M Assignment #2 - Pages 43-74
N-S Assignment #3 - Pages 75-106
T-Z Assignment #4 - Pages 107-137
Alterative Assignment #5 for repeat students - Pages 139-168

Please email us for any assistance –info@tlch2o.com.

Agricultural Pesticide Control CEU Training Assignment #1
Last Names A to G Only

You will have 90 days from the start of this course to have successfully pass this assignment with a score of 70 %. You may email the answers to TLC, info@tlch2o.com or fax the answers to TLC, (928) 272-0747. This assignment is available to you in a Word Format on TLC's Website. You can find online assistance for this course in Adobe Acrobat's Search function. Once you have paid the course fee, you will be provided complete course support from Student Services (928) 468-0665.

You will need to pick one of the following three assignments to complete. This selection process is based upon your last name. If your last name begins with an A to G, you will pick assignment number 1, if your last name begins with the letter H to M, you are to complete assignment number 2 and if your last name begins with the letter N-S, you will pick assignment number 3 and if your last name starts with T to Z you need to complete assignment #4. If you are a repeat student, please take the alterative version # 5 assignment.

Topic 1 Pesticide Fundamentals Introduction

12 final exam questions. (s) Means answer can be singular or plural.

Complete all topics before submitting the answers key.

Classes of Agricultural Insecticides

1. The classification of insecticides is done in several different ways:
Contact insecticides are toxic to insects brought into direct contact. Efficacy is often related to the_____, with small droplets (such as aerosols) often improving performance.

A. An insect growth regulator
B. Quality of pesticide application
C. Insecticide(s)
D. Hormonal IGRs
E. IPM program(s)
F. None of the Above

Penta or Pentachlorophenol

2. Releases to the environment are decreasing as a result of declining consumption and changing use methods. However, PCP is still released to surface waters from the atmosphere by_____, from soil by run off and leaching, and from manufacturing and processing facilities.

A. Neurotoxicity
B. Volatilization
C. Contact insecticides
D. Pesticide application(s)
E. Wet deposition
F. None of the Above

Carbamates

3. Carbamate insecticides have similar toxic mechanisms to_____, but have a much shorter duration of action and are thus somewhat less toxic.

A. An insect growth regulator
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Phosphoric acid esters
F. None of the Above

Organophosphates and Carbamates Pesticides

4. Organophosphates are phosphoric acid esters or?

A. Insect growth regulator
B. Temephos
C. Chlorpyrifos
D. Hormonal IGRs
E. Thiophosphoric acid esters
F. None of the Above

Pyrethroids

5. To mimic the insecticidal activity of the natural compound pyrethrum another class of pesticides, pyrethroid pesticides, has been developed. These are?

A. Persistent
B. Environmentally safe
C. Non-persistent
D. Natural compound pyrethrum
E. Inhalation and dermal absorption hazards
F. None of the Above

6. Which of the following term are formulated as emusifiable concentrates (EC), wettable powders (WP), granulars (G), and aerosols?

A. Insect growth regulator(s)
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Phosphoric acid esters
F. None of the Above

Borates

7. Wood moisture content and method and length of storage are the primary factors affecting penetration by?

A. Inert ingredients
B. Pesticide levels
C. Water characteristics
D. Wood moisture content
E. Chemistry
F. None of the Above

Properties of Pesticides

8. The properties of pesticides determine their_____. The important properties are persistence, volatility, and solubility in water.

A. Atmospheric deposition
B. Environment
C. Insecticidal activity
D. Fate and behavior in the environment
E. Inhalation and dermal absorption
F. None of the Above

Properties of the Environment

9. Water characteristics also vary and influence pesticide behavior. Some of the characteristics are acidity, depth, temperature, clarity, flow rate,_____.

A. And inert ingredients
B. And pesticide levels
C. And water characteristics
D. And wood moisture content
E. Presence of biological organisms and general chemistry
F. None of the Above

10. Living organisms accumulate certain pesticides, through the process of bioaccumulation, pesticides accumulate in lower organisms and are passed to higher organisms in the food chain when?

A. Deposition occurs
B. Absorbed
C. Inert ingredients are high
D. Insecticidal activity is absorbed
E. Inhaled and dermally absorbed
F. None of the Above

11. Which of the following term are designed to preserve the active ingredients, make them easier to apply or improve their killing ability?

A. Inert ingredients
B. Pesticide levels
C. Product characteristics
D. Adjutant content
E. Chemistry
F. None of the Above

12. Children and individuals with impaired immune systems are more vulnerable than adults to?

A. Inert ingredients
B. Pesticide levels
C. Pesticide poisoning
D. Chemical content
E. Various products
F. None of the Above

Topic 2 Agricultural Pesticide Information

15 final exam questions. (s) Means answer can be singular or plural.

Changes to EPA's Farm Worker Protection Standard

1. The regulation seeks to protect and reduce the risks of injury or illness resulting from agricultural workers' (those who perform_____ , such as harvesting, thinning, pruning) and pesticide handlers' (those who mix, load and apply pesticides) use and contact with pesticides on farms, forests, nurseries and greenhouses. The regulation does not cover persons working with livestock.

A. Application
B. Work
C. Apply
D. Hand-labor tasks in pesticide-treated crops
E. Tasks related to growing
F. None of the Above

Employers covered by the WPS must:

2. Reduce overall exposure to pesticides by prohibiting handlers from exposing workers during pesticide application, excluding workers from areas being treated and areas under a restricted entry interval, and?

A. Work Activities
B. Pesticide application
C. Pesticide(s)
D. Notifying workers about treated areas
E. Potential hazards from toxicity and exposure
F. None of the Above

3. Which of the following term are very complicated and are likely to affect a large number of employers and their workers?

A. WPS provisions
B. Retaliatory action(s)
C. WPS
D. Mitigate exposure(s)
E. Agricultural establishment
F. None of the Above

4. States may also issue worker protection standards that are stricter than the WPS. Therefore, employers should contact their State agency that regulates the Federal Insecticide, Fungicide, and Rodenticide Act in cooperation with the _____to determine whether they must comply with the WPS and local regulations. Nothing in this report replaces technical and professional legal advice.

A. WPS provisions
B. States
C. Annual mandatory training
D. EPA
E. Standards
F. None of the Above

Agricultural Employers Responsibility
New WPS Requirements 2015-2018

5. Requirement to provide more than one way for farmworkers and their representatives to gain access to _____ and safety data sheets – centrally-posted, or by requesting records.

A. Requirement(s)
B. Emergency assistance
C. Information exchange(s)
D. Appropriate measure(s)
E. Pesticide application information
F. None of the Above

Training Changes

6. This is the area with the most changes. Under the revision growers subject to the WPS must now train their employees every year and they must be trained on Day 1 before they do any work in the crop areas if it has been less than _____ days since the last restricted entry interval expired. Make sure the employees sign off on their training and keep those on file. If the employee requests a copy of the sign off employers are now responsible to give them one copy.

A. 30
B. 45
C. 60
D. 7
E. 360
F. None of the Above

Central Location

7. Of course you will still need to keep pesticide application information for _____ days at the central location and the pesticide safety information (poster). The central location must be easily accessible to your employees.

A. 30
B. 45
C. 60
D. 7
E. 360
F. None of the Above

Worker Protection Standard for Agricultural Pesticides

8. Provisions of the WPS apply to: Owners or managers of farms, forests, nurseries, or greenhouses where pesticides are _____agricultural plants. Those who hire or contract for services of agricultural workers to do tasks related to the production of agricultural plants on a farm, forest, nursery, or greenhouse.

A. Used in the production of
B. Work
C. Apply
D. Mix, load, or apply agricultural pesticide(s)
E. Tasks related to growing
F. None of the Above

General Duties of WPS

9. Assure that any _____subject to the standard is used in a manner consistent with the labeling of the pesticide, including the requirements in the standard.

A. Emergency assistance
B. Labeling of the pesticide
C. PPE
D. Requirements in the standard
E. Pesticide
F. None of the Above

What Does the Revised WPS Require?

10. The requirements in the _____ are intended to inform workers and handlers about pesticide safety, provide protections from potential exposure to pesticides, and mitigate exposures that do occur.

A. Protective clothing
B. Retaliatory action(s)
C. WPS
D. Mitigate exposure(s)
E. Agricultural establishment
F. None of the Above

11. Emergency assistance making transportation available to a medical care facility in case of a pesticide injury or poisoning, and providing _____ to which the person may have been exposed.

A. Requirement(s)
B. Emergency assistance
C. Information exchange(s)
D. Appropriate measure(s)
E. Information about the pesticide(s)
F. None of the Above

Who is Covered by the 2015 WPS?

12. Pesticide handlers: those who mix, load, or apply agricultural pesticides; clean or repair pesticide application equipment; or?

A. Application
B. Work
C. Apply
D. Mix, load, or apply agricultural pesticide(s)
E. Assist with the application of pesticides
F. None of the Above

13. Agricultural workers: those who perform _____and harvesting plants on farms or in greenhouses, nurseries, or forests.

A. Application
B. Work
C. Apply
D. Mix, load, or apply agricultural pesticide(s)
E. Tasks related to growing
F. None of the Above

Understanding the Worker Protection Standard?

14. The Worker Protection Standard (WPS) is a regulation issued by the U.S. Environmental Protection Agency. It covers pesticides that are used in the production of agricultural plants on farms, forests, nurseries, and greenhouses. The _____ requires you to take steps to reduce the risk of pesticide-related illness and injury if you (1) use such pesticides, or (2) employ workers or pesticide handlers who are exposed to such pesticides.

A. AEZ D. EPA
B. REI E. OSHA
C. WPS F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

15. If you are an agricultural pesticide user and/or an employer of agricultural workers or pesticide handlers, the _____ requires you to provide to your employees and, in some cases, to yourself and to others: information about exposure to pesticides, protections against exposures to pesticides, and ways to mitigate exposures to pesticides.

A. AEZ D. EPA
B. REI E. OSHA
C. WPS F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

Topic 3 Common Pesticide Applications and Methods

17 final exam questions. (s) Means answer can be singular or plural.

Hand Operated Sprayers

1. Obtaining uniform coverage of an area is difficult with a hand operated sprayer. The operator must move the nozzle from side to side with?

A. Field crops D. Any action necessary
B. Action thresholds E. Compatibility agents
C. Agriculture industry F. None of the Above

2. There are many other types of hand operated sprayers that are not widely used throughout the agriculture industry. Some may be used extensively for the production of?

A. Field crops D. Any action necessary
B. Action thresholds E. Compatibility agents
C. Specific commodities F. None of the Above

Boom Sprayers

3. Most sprayers distribute pesticides using a boom with spray nozzles spaced at regular intervals. The most common example would be wide horizontal booms used on _____to spray field crops.

A. Motorized sprayers D. Field sprayers
B. Spray nozzles E. Airblast sprayers
C. Wide horizontal booms F. None of the Above

Airblast sprayers

4. In field crops good coverage is relatively easy to achieve where the _____is small and close to the nozzles. In tree fruits, especially with large trees, good coverage with conventional sprayers is more difficult to achieve.

A. Field crops D. Target foliage
B. Action thresholds E. Compatibility agents
C. Agriculture industry F. None of the Above

5. Examples of _____ include Arborchem and kerosene.
A. Insect growth regulator
B. Penetrating Agents
C. Action thresholds
D. Hormonal IGRs
E. Restricted pesticides
F. None of the Above

Insect Growth Regulators
Reduced Risk
6. Many IGRs are labeled "reduced risk" by the Environmental Protection Agency, meaning that they target _____while causing less detrimental effects to beneficial insects.
A. Insect growth regulator
B. Juvenile harmful insect populations
C. Action thresholds
D. Hormonal IGRs
E. Restricted pesticides
F. None of the Above

Hormonal IGRs
7. Hormonal IGRs typically work by mimicking or inhibiting the juvenile hormone (JH), one of the two major hormones involved in insect molting. IGRs can also inhibit the other hormone, ecdysone, large peaks of which trigger the?
A. Insect growth regulator
B. Chitin
C. Insect to molt
D. Hormonal IGRs
E. IPM program(s)
F. None of the Above

Hexaflumuron
8. Hexaflumuron (hexaflumeron) is a(n) _____ that interferes with insects' chitin synthesis.
A. Pesticide chemical application
B. Pyrethroid
C. Insect growth regulator
D. Restricted pesticide
E. Organophosphate
F. None of the Above

Diflubenzuron
9. Diflubenzuron is an insecticide of the _____class. It is used in forest management and on field crops to selectively control insect pests.
A. Benzamide
B. Pyrethroid
C. Insect growth regulator
D. Restricted pesticide
E. Organophosphate
F. None of the Above

Pyriproxyfen
10. Pyriproxyfen is a juvenile hormone analogue, preventing larvae from developing into adulthood and thus rendering them unable to reproduce. In the US pyriproxyfen is often marketed under the trade name Nylar. In Europe _____is known under the brand names Cyclio (Virbac) and Exil Flea Free TwinSpot (Emax).
A. Benzamide
B. Pyrethroid
C. Pyriproxyfen
D. Restricted pesticide
E. Organophosphate
F. None of the Above

Methoprene
11. Methoprene is a(n) _____ with activity against a variety of insect species including horn flies, mosquitoes, beetles, tobacco moths, sciarid flies, fleas (eggs and larvae), fire ants, pharaoh ants, midge flies and Indian meal moths.
A. Insect growth regulator
B. Chitin
C. Benzoyl-phenylurea termiticide
D. Hormonal IGRs
E. Benzamide
F. None of the Above

IPM Methods (Types of Pest Control)

12. IPM is not a single pest control method but, rather, a series of pest management evaluations, decisions and controls. In practicing IPM, growers who are aware of the potential for pest infestation follow _____approach.

A. Pesticide chemical application(s)
B. Pyrethroids
C. An insect growth regulator
D. Restricted pesticides
E. Organophosphates
F. None of the Above

Activity of Adjuvants

13. Adjuvants, or additive compounds, aid in the mixing, application or effectiveness of pesticides. One class of adjuvants, _____, allow(s) uniform mixing of compounds that would normally separate. Other types of adjuvants include spreaders, stickers, and synergists.

A. Restricted pesticides
B. Action thresholds
C. Agriculture industry
D. Pesticide chemical application(s)
E. Compatibility agents
F. None of the Above

Knowledge of Labeling Information

14. Which of the following term must assure that handlers understand all of the labeling requirements related to safe use of pesticides before any handling activity takes place?

A. Handler(s)
B. Agricultural employer(s)
C. Handler employer
D. Early-entry workers
E. Worker(s)
F. None of the Above

What Information Must Be Displayed? These are found under the Topic 4 section.

15. The following three types of information must be displayed at a central location before a pesticide is applied: Pesticide-specific application information, which must include: the location and description of the area to be treated, product name, EPA registration number, and_____, time and date the pesticide is scheduled to be applied, and restricted-entry interval for the pesticide.

A. WPS safety poster
B. Decontamination supplies
C. Restrictions
D. Pesticide-specific application information
E. Personal protective equipment (PPE)
F. None of the Above

16. The WPS requires that decontamination supplies be provided regardless of the?

A. WPS safety poster
B. Decontamination supplies
C. Restrictions
D. Pesticide-specific application information
E. Personal protective equipment (PPE)
F. None of the Above

17. Decontamination and emergency eyeflush water must, at all times when it is available to_____, be of a quality and temperature that will not cause illness or injury when it contacts the skin or eyes or if it is swallowed.

A. Handler(s)
B. Workers or handlers
C. Handler employer
D. Early-entry workers
E. Worker(s)
F. None of the Above

Topic 4 Decontamination and Emergency Requirements

14 final exam questions. (s) Means answer can be singular or plural.

Which Pesticides Uses are Covered?

1. Most pesticide uses involved in the production of agricultural plants on a farm, forest, nursery, or greenhouse are covered by the WPS. This includes pesticides used on plants, and pesticides used on the soil or planting medium the plants are (or will be) grown in. Both general-use and restricted-use pesticides are covered by the_____ . You will know that the product is covered by the WPS if you see the following statement in the Directions for Use section of the pesticide labeling.

A. Emergency assistance
B. Labeling of the pesticide
C. PPE
D. Requirements in the standard
E. WPS
F. None of the Above

Decontamination Supplies and Requirements

2. _____ must have adequate water for routine washing, soap and sufficient paper towels.

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Workers, handlers and early-entry workers
E. Hand labor operations
F. None of the Above

3. Handlers and early-entry workers must also carry _____ of water with them (or it must be "immediately" nearby on their vehicle) for emergency eyeflushing when the pesticide label requires protective eyewear (goggles or faceshield).

A. A pint
B. Gallon
C. 2 gallons
D. 2 pints
E. 5 gallons
F. None of the Above

WPS Requires Providing Decontamination Sites

4. _____ must establish a decontamination site for all workers and handlers for washing off pesticides and pesticide residues. A decontamination site must be within a quarter (1/4) mile of the employees' work site.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Workers and handlers
E. Employe(es)
F. None of the Above

No-contact early-entry workers do **not** have to be provided the special protections required in 5. Early Entry. However, they must be provided the following protections offered to other agricultural workers: information at a central location, pesticide safety training for workers, notification, restrictions during applications and during restricted-entry intervals, and emergency assistance. Decontamination supplies, however, need **not** be provided to _____ workers.

A. No hand labor
B. No Contact
C. Short-term
D. No entry
E. No-contact early-entry
F. None of the Above

Specific Duties - Emergency Transportation

6. Promptly make emergency transportation available to take the worker to an emergency medical facility able to provide treatment: from the agricultural establishment, or _____ can "make transportation taking the employee to the emergency medical facility, or calling a such as an ambulance, or making sure the employee has a ride to the medical and facility with someone else.

A. Worker(s)
B. Handler(s)
C. Agricultural employer
D. Employers
E. Workers and handlers
F. None of the Above

Emergency Information

7. Provide to the worker or handler or to treating medical personnel, promptly upon emergency vehicle, request, any obtainable information on: product name, EPA registration number, and active ingredients for any product(s) to which the person may have been exposed, antidote, first aid, _____and other medical or emergency information from the product labeling, description of the way the pesticide was being used, circumstances of the worker's or handler's exposure to the pesticide.

A. Emergency assistance
B. Labeling of the pesticide
C. Statement of practical treatment
D. Requirements in the standard
E. Mitigating exposure(s)
F. None of the Above

Requirements for Handlers

8. The general applicability, exceptions and exemptions in the requirements for handlers and workers are the same. However, the requirements for _____have specific differences.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Workers and handlers
E. Employe(es)
F. None of the Above

Restrictions During Application

9. The handler employer must assure that**:** No pesticide is applied so as to contact any worker (directly or through _____) other than an appropriately trained and equipped handler.

A. Drift
B. Droplets
C. Contact
D. Dusts
E. Application
F. None of the Above

Pesticide Safety Training

10. A handler employer must assure that each handler is properly trained in pesticide safety by a qualified trainer.

A. True
B. False

11. The minimum pesticide training required, as well as the criteria for qualified trainers, is specified in the standard. _____ who have been trained under 40 Code of Federal Regulations, Part 171 are exempt from this requirement.

A. Worker(s)
B. Handler(s)
C. Agricultural employer
D. Certified handlers and handlers
E. Workers and handlers
F. None of the Above

Notice of Application to Agricultural Employers

12. Prior to applying any pesticide on an agricultural establishment, a handler employer must provide the following information to an agricultural employer or be assured that the agricultural employer is aware of the specific time, date, location, and description of_____ , labeling requirements relating to protection of workers during or after application, product name, the EPA registration number, active ingredients, REI, and notification requirements.

A. The pesticide-treated area
B. Labeling of the pesticide
C. PPE
D. Requirements in the standard
E. Mitigating exposure(s)
F. None of the Above

Pesticide Safety Training

13. A handler employer must assure that each handler is properly trained in pesticide safety by a_____. The minimum pesticide training required, as well as the criteria for qualified trainers, is specified in the standard. Certified handlers and handlers who have been trained under 40 Code of Federal Regulations, Part 171 are exempt from this requirement.

A. Worker(s)
B. Handler(s)
C. Agricultural employer
D. Qualified trainer
E. Workers and handlers
F. None of the Above

Employee Rights:

14. A _____ may designate a representative to request, on their behalf, pesticide application and hazard information.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Workers and handlers
E. Employe(es)
F. None of the Above

Complete all topics before submitting the answers key.

Topic 5 Personal Protection Equipment, Safety, Health Section

15 final exam questions. (s) Means answer can be singular or plural.

How is the AEZ measured and the size of the AEZ determined?

1. The AEZ is measured from the application equipment. The AEZ also moves with the application equipment like a halo around the_____.

A. No responsibilitie(s)
B. Applicable AEZ distance(s)
C. AEZ
D. Application equipment
E. Planting medium
F. None of the Above

2. Does the new WPS requirements related to the AEZ apply to the agricultural employer or the handler making the application. There are several different requirements regarding the AEZ in the_____ . First, the WPS provision at 170.405(a)(1) establishes the applicable AEZ distances.

A. No responsibilitie(s)
B. Applicable AEZ distance(s)
C. Revised WPS
D. Halo around the application equipment
E. Planting medium
F. None of the Above

3. The agricultural employer may not allow a pesticide to be applied while _____ on the establishment is in the treated area or within the AEZ.

A. Worker(s)
B. Handler(s)
C. Any worker or other person
D. Workers and handlers
E. Employe(es)
F. None of the Above

4. Does the agricultural employer have WPS responsibilities related to the new AEZ requirements if workers or other persons are off his/her establishment? The AEZ requirement at §170.405(a) imposes no responsibilities on an agricultural employer in regard to workers or other persons who are not on the _____ as long as the agricultural employer is not the pesticide applicator.

A. No responsibilitie(s)
B. Applicable AEZ distance(s)
C. Agricultural establishment
D. Halo around the application equipment
E. Planting medium
F. None of the Above

5. If the agricultural employer is also the handler making the pesticide application, then §170.505 would require him/her to suspend a pesticide application if any worker or other person is within the AEZ beyond the boundary of the_____.

A. Agricultural employer
B. AEZ
C. Agricultural establishment
D. Pesticide application
E. Pesticide applicator
F. None of the Above

6. It is important to note that this answer only applies in regard to workers and other persons beyond the boundaries of the establishment; if a handler were to resume an application while workers or other persons on the establishment are still within the _____, that would give rise to a violation of § 170.405.

A. Agricultural employer
B. AEZ
C. Establishment
D. Pesticide application
E. Pesticide applicator
F. None of the Above

Prevention, Recognition, First Aid Treatment of Heat-Related Illness
Heat-Related Illnesses and First Aid

7. _____, the most serious form of heat-related illness, happens when the body becomes unable to regulate its core temperature. Sweating stops and the body can no longer rid itself of excess heat. Signs include confusion, loss of consciousness, and seizures.

A. Tired muscles
B. Heat stroke
C. Heat rash
D. Heat exhaustion
E. Heat cramps
F. None of the Above

8. _____ is a medical emergency that may result in death! Call 911 immediately.

A. Heat rash
B. Heat stroke
C. Tired muscles
D. Heat exhaustion
E. Heat cramps
F. None of the Above

9. _____—those used for performing the work—are usually the ones most affected by cramps. Cramps may occur during or after working hours.

A. Heat rash
B. Heat stroke
C. Tired muscles
D. Heat exhaustion
E. Heat cramps
F. None of the Above

10. _____, also known as prickly heat, is skin irritation caused by sweat that does not evaporate from the skin. Heat rash is the most common problem in hot work environments.

A. Tired muscles
B. Heat stroke
C. Heat rash
D. Heat exhaustion
E. Heat cramps
F. None of the Above

Why Rinse Pesticide Containers?

11. Proper rinsing of pesticide containers is easy to do, saves money, and helps protect people and the environment. It also helps prevent potential problems with un-rinsed containers, rinsate storage, and pesticide wastes. Even during a busy season the few extra minutes it takes to properly _____is time well spent.

A. Triple punched
B. Properly rinsed
C. Pesticide container
D. Dispose of the rinsate
E. Rinse empty pesticide containers
F. None of the Above

12. Rinsate from the containers, when added directly into the sprayer tank, efficiently and economically uses all pesticide in the container. This eliminates the need to store and later dispose of the _____.

A. Triple punched
B. Properly rinsed
C. Pesticide containers
D. Rinsate
E. Rinsate storage, and pesticide wastes
F. None of the Above

Rinsing Helps Protect the Environment

13. Proper rinsing of pesticide containers reduces a potential source of contamination of soil, surface, and ground water. When contamination occurs, plants and animals may be harmed and water supplies affected. _____is always better than cleanup. Rinsing also helps in reducing the problem of handling pesticide wastes.

A. Triple punched
B. Properly rinsed
C. Pesticide containers
D. Prevention of environmental contamination
E. Rinsate storage, and pesticide wastes
F. None of the Above

14. No matter how an empty pesticide container is disposed of, it must be properly _____.

A. Triple punched
B. Properly rinsed
C. Rinsed and triple punched
D. Dispose of the rinsate
E. Rinsate storage, and pesticide wastes
F. None of the Above

15. Both federal and state laws require rinsing. Landfill operators and recyclers can only accept properly_____. Pesticide containers should only be offered to recycling projects designed for pesticide containers and not general plastic and metal recycling programs. Pesticide container recycling project personnel will inspect containers to determine if they have been properly rinsed.

A. Triple punched
B. Properly rinsed
C. Rinsed containers
D. Dispose of the rinsate
E. Rinsate storage, and pesticide wastes
F. None of the Above

Topic 6 WPS Required Training Section

15 final exam questions. (s) Means answer can be singular or plural.

Training Requirements

1. If a worker or handler was trained in _____, they will need to receive WPS training within 1 year of the 2016 training. This training will not need to include the 2018 training content. For example, a worker trained on April 14, 2016 will need to be retrained prior to April 14, 2017.

A. 2015
B. 2016
C. 2017
D. 2018
E. 2014
F. None of the Above

2. If a worker or handler was not trained in _____, they would have to be trained before they do any worker or handler tasks.

A. 2015
B. 2016
C. 2017
D. 2018
E. 2014
F. None of the Above

The training must include, at a minimum, all of the following after January 2, 2017:

3. Where and in what form pesticides may be encountered during _____.

A. Work Activities
B. Toxicity and exposure
C. Pesticide(s)
D. Pesticide application
E. Pesticide applicator
F. None of the Above

4. _____, including emergency eye flushing techniques.

A. Workers' questions
B. Safety
C. All training materials
D. Emergency decontamination procedures
E. Routine and emergency decontamination procedures
F. None of the Above

5. Requirements designed to reduce the risks of illness or injury resulting from workers' occupational exposure to pesticides, including application and entry restrictions, the design of the warning sign, posting of warning signs, oral warnings, the _____ about applications, and the protection against retaliatory acts

A. Availability of specific information
B. Emergency assistance
C. Information exchange(s)
D. Appropriate measure(s)
E. Safe operation
F. None of the Above

6. Requirements that must be followed by handler employers for the protection of handlers and other persons, including the prohibition against applying pesticides in a manner that will cause contact with_____, the requirement to use personal protective equipment, the provisions for training and decontamination, and the protection against retaliatory acts.

A. Worker(s)
B. Handler(s)
C. Workers or other persons
D. Workers and handlers
E. Employe(es)
F. None of the Above

7. The responsibility of agricultural employers to provide specific information to workers before directing them to perform early-entry activities. _____ must be 18 years old to perform early-entry activities.

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Hired workers and handlers
E. Hand labor operations
F. None of the Above

8. After working in pesticide treated areas, remove work boots or shoes before entering your home, and _____and wash or shower before physical contact with children or family members.

A. Work Activities
B. Pesticide applicator
C. Remove work clothes
D. Pesticide application
E. Potential hazards from toxicity and exposure
F. None of the Above

Decontamination Supplies

9. 1 gallon of water per worker and _____ gallons of water per handler at the beginning of each work period for routine and emergency decontamination,

A. 100
B. 2
C. 3
D. 5
E. 10
F. None of the Above

10. Plenty of soap and single-use towels, Note: hand sanitizers and wet towelettes are insufficient. 170.411 (b)(2) and 170.509 (b)(2) A clean coverall (or other clean change of clothes) for _____.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Workers and handlers
E. Employe(es)
F. None of the Above

Labeling Information Section

11. A handler employer must assure that handlers understand all of the labeling requirements related to safe use of pesticides before any handling activity takes place. The handler must also have access to the _____ during handling activities.

A. Emergency assistance
B. Labeling of the pesticide
C. PPE
D. Product labeling information
E. Mitigating exposure(s)
F. None of the Above

Personal Protective Equipment

12. Any person handling a pesticide must use the clothing and PPE specified on the label for product use. Characteristics of protective clothing and PPE are specified in the_____, as are exceptions to PPE specified on product labeling. The handler employer must take appropriate measures to prevent heat-related illnesses.

A. Requirement(s)
B. Emergency assistance
C. Information exchange(s)
D. Appropriate measure(s)
E. Standard
F. None of the Above

Workers and Handlers Section

Who Must Protect Workers and Handlers?

13. Employers are responsible for making sure that workers and handlers receive the protections required by the pesticide labeling and the WPS. The term "employer" has a special meaning in the WPS — you are an employer even though you are _____ or use only members of your own family to do the work on your establishment.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Self-employed
E. Employe(es)
F. None of the Above

WPS Employer Definitions

Worker Employers:

14. Worker employers are people who: _____ for the services of workers (including themselves and members of their family) for any type of compensation to perform tasks related to the production of agricultural plants, or own or operate an agricultural establishment that uses such workers. (See definition of "owner,".) (See definition of "worker,".)

A. Employ or contract
B. Work
C. Apply
D. Mix, load, or apply agricultural pesticide(s)
E. Tasks related to growing
F. None of the Above

Handler Employers:

15. Handler employers are people who: employ pesticide handlers (including members of their family), for any type of compensation, or are self-employed as_____.

A. Worker(s)
B. Handler(s)
C. Pesticide handlers
D. Workers and handlers
E. Employe(es)
F. None of the Above

Topic 7 Beneficial Insect Identification

18 final exam questions. (s) Means answer can be singular or plural.

Mealybug Destroyers

1. Both the larvae and adults of this lady beetle feed on mealybugs. They may also feed on aphids and immature scale insects. Each adult female lays hundreds of eggs in mealybug egg masses. When the beetle larvae hatch, they feed on _____.

A. Scale insects or spider mites
B. White silken cocoons of parasites
C. Restriction of the colony
D. Spider mites, thrips, and their eggs
E. Immature mealybugs
F. None of the Above

Ground Beetles

2. While _____may vary widely, they are usually shiny. Black is a common color, sometimes with a metallic sheen of another color on their wing covers. Most ground beetles feed at night and hide in the soil or under debris during the day.

A. A starch in their saliva
B. Chagas disease
C. Shapes and colors
D. Yellowish to creamy
E. Very sensitive to touch
F. None of the Above

Lady Beetles

3. Lady beetles that feed on scale insects or spider mites do not lay their eggs in masses. Instead, eggs are laid singly on leaves or_____. Most lady beetle larvae are elongated in form and slightly pointed at the rear.

A. Under the cover of the scale insect
B. White silken cocoons of parasites
C. Restriction of the colony
D. Spider mites, thrips, and their eggs
E. Nectar- or pollen-producing plants
F. None of the Above

Rove Beetles

4. These fascinating insects may resemble a tiny scorpion when they hold the tip of their abdomen up in the air. They are _____and measure 1/10 to one inch long. Depending upon species, rove beetles prey upon aphids, springtails, mites, nematodes, slugs, snails, fly eggs and maggots. They also eat and help break down decaying organic material.

A. Slow moving
B. Fast moving
C. Small
D. Yellowish to creamy
E. Very sensitive to touch
F. None of the Above

Soldier Beetle

5. The adults are_____. They supplement their diet with nectar and pollen and can be minor pollinators. Soldier beetle populations can be increased by planting good nectar- or pollen-producing plants such as Asclepias or Solidago.

A. Similar to scale insects or spider mites
B. White silken cocoons of parasites
C. Part of the colony
D. Very sensitive to touch
E. Especially important predators of aphids
F. None of the Above

Assassin Bug

6. Some blood-sucking species, particularly Triatoma spp. and other members of the subfamily Triatominae (e.g., Paratriatoma hirsuta), are also known as kissing bugs due to their habit of biting humans in their sleep on the soft tissue of the lips and eyes; a number of these haematophagous species, located in Central and South America, are able to _____.

A. Have a starch in their saliva
B. Transmit venereal disease
C. Eat bananas
D. Emit a yellowish to creamy ice cream flavor
E. Kiss people
F. None of the Above

Minute Pirate Bug

7. Adults are 2–5 mm long and feed mostly on _____, but will also feed on pollen and vascular sap. These predators are common in gardens and landscapes. They have a fairly painful bite, but are not poisonous.

A. Scale insects or spider mites
B. White silken cocoons of parasites
C. Aphid lions
D. Spider mites, thrips, and their eggs
E. Nectar- or pollen-producing plants
F. None of the Above

Green Lacewings

8. They are voracious predators, attacking most insects of suitable size, especially soft-bodied ones (aphids, caterpillars and other insect larvae, insect eggs, and at high population densities also each other). Therefore, the larvae are colloquially known as "aphid lions" (also spelled "aphidlions") or "_____", similar to the related antlions. Their senses are weakly developed, except that they are very sensitive to touch.

A. Scale insects
B. Parasites
C. Aphid wolves
D. Ant tigers
E. Green monsters
F. None of the Above

Syrphid flies -Hoverflies

9. Hoverflies, sometimes called flower flies or syrphid flies, make up the insect family Syrphidae. As their common name suggests, they are often seen hovering or nectaring at flowers; the adults of many species feed mainly on nectar and pollen, while the larvae (maggots) eat_____.

A. Scale insects or spider mites
B. Other parasites
C. A wide range of foods
D. Spider mites, thrips, and their eggs
E. Nectar- or pollen-producing plants
F. None of the Above

Parasitic Wasps

10. Females of many species have a spine-like egg-laying structure (ovipositor) at the tip of the abdomen. Larval stages are usually not observed unless they are dissected from hosts (internal parasites) or_____.

A. Omit a starch in their saliva
B. Present Chagas disease
C. Detected on the host (external parasites)
D. Are yellowish to creamy
E. Are very sensitive to touch
F. None of the Above

Bald-faced Hornet

11. Every year, queens that were born and fertilized at the end of the previous season begin a new colony. The _____ selects a location for its nest, begins building it, lays a first batch of eggs and feeds this first group of larvae.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Queen(s)
D. Larvae(s)
E. Honey bee(s)
F. None of the Above

Honey Bees Apidae Family of Insects

12. Currently, there are only seven recognized species of _____ with a total of 44 subspecies, though historically, anywhere from six to eleven species have been recognized.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

Bumble Bee

13. Bumble bees form colonies. These colonies are usually much less extensive than those of honey bees. This is due to a number of factors including the small physical size of the nest cavity, the responsibility of a _____for the initial construction and reproduction that happens within the nest, and the restriction of the colony to a single season (in most species).

A. Single female
B. Mason bee(s)
C. Queen(s)
D. Larvae(s)
E. Honey bee(s)
F. None of the Above

Mason Bee

14. Smaller than a _____, mason bees resemble house flies more than honey bees. They are deep blue-black in color and have no stripes. Mason bees are native to North America. They are active pollinators between cherry blossom and apple blossom season, and then die out by summer.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

15. Attract _____ by providing them a home. Drill holes exactly 5/16-inch in diameter into wooden blocks and mount the blocks by cherry blossom season facing morning sun.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

Cuckoo Bee

16. Cuckoo Bees are parasites, in that the female cuckoo bee lays her eggs in the nest of other bees, primarily_____.

A. Digger bees and Andrenids
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

Centipede

17. Centipedes are predators, and mainly use their antennae to seek out their prey. The digestive tract forms a simple tube, with digestive glands attached to the mouthparts. Like insects, centipedes breathe through a tracheal system, typically with a single opening, or spiracle on each body segment. They excrete waste through _____

A. Scopa
B. Involucrum
C. Rectum
D. A single pair of malpighian tubules.
E. A starch in their saliva
F. None of the Above

Tachnid Flies

18. The taxonomy of this family presents many difficulties. It is largely based on_____, but also on reproductive habits and on the immature stage.

A. Scopa
B. Involucrum
C. Number of factors
D. Morphological characters of the adult flies
E. Starch in their saliva
F. None of the Above

Topic 8 Honey Bee Detailed Section Post Exam

Biology and Habits of the Honey Bee

1. The honey bee undergoes complete metamorphosis, passing through four stages: egg, larva, pupa, and adult. Bees develop into three different castes:_____, queens, and drones.

A. Pupa
B. Soldiers(s)
C. Virgin queen(s)
D. Scout bees
E. Workers
F. None of the Above

2. Developmental time and longevity vary with each caste and among races. When honey bees emerge as adults, they continue to develop. At first their body is soft, but the cuticle hardens in about 12-24 hours. During the next few days, glands and reproductive organs (in the_____) develop and mature.

A. Drones
B. Queen(s)
C. Virgin queen(s)
D. Scout bees
E. Queens and drones
F. None of the Above

3. _____ produce semen in about 12 days and queens begin to lay eggs about three days after mating. In a typical colony there will be only one laying queen, about 100 – 300 drones, and about 20,000 - 60,000 workers.

A. Drones
B. Kings(s)
C. Soldiers(s)
D. Scout bees
E. Each caste and among races
F. None of the Above

Virgin Queens

4. When mature, virgin queens take a mating flight and mate with 10-15 _____. In about three days the queen begins to lay eggs.

A. Drones
B. Queen(s)
C. Virgin queen(s)
D. Scout bees
E. Workers
F. None of the Above

5. _____may lay as many as 1,500 eggs in a single day and around 200,000 eggs in a year. The queen controls whether or not the eggs are fertilized, using sperm stored in her spermatheca.

A. Drones
B. A queen
C. Virgin queen(s)
D. Scout bees
E. Each caste and among races
F. None of the Above

The Domicile

6. The AHB swarms much more frequently than other honey bees. A colony is a group of bees with comb and brood. _____may either be managed (white hive boxes maintained by professional beekeepers) or wild (feral).

A. The AHB swarms
B. Swarm
C. The colony
D. Swirling mass of flying bees
E. Brood
F. None of the Above

7. A group of bees that are in the process of leaving their parent colony and starting a nest in a new location is called a "_____." Usually a new queen is reared to stay with the parent colony and the old queen flies off with the swarm.

A. AHB swarms
B. Swarm
C. Scout bee(s)
D. Swirling mass of flying bees
E. Brood
F. None of the Above

8. _____ often locate potential nest sites prior to swarming, but the swarm may spend a day or two clustered in impressive, hanging clumps on branches or in other temporary locations until the bees settle on a new nesting site. If they can't find a suitable location, the bees may fly several miles and cluster again.

A. The AHB swarms
B. Swarm
C. Scout bee(s)
D. Swirling mass of flying bees
E. Drones
F. None of the Above

9. When the swarm emerges from its domicile and settles in a cluster on a tree, certain "_____" communicate to it the availability of other domiciles. At least some of these domiciles may have been located by the scout bees before the swarm emerged.

A. Drones
B. Queen(s)
C. Virgin queen(s)
D. Scout bees
E. Each caste and among races
F. None of the Above

10. Pyrethrins are_____**.** Pyrethrins, bee killers derived from the flowers of the chrysanthemum, work quite well as a spray for controlling bee populations. Pyrethrins are not generally used to destroy entire bee colonies. Instead, as they only kill the bees that get sprayed directly, pyrethrins are usually just used to keep populations from getting too out of hand. Microcare Aerosol is a good brand.

A. Another natural bee pesticide
B. Hazardous
C. Used for bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

Topic 9 Africanized Honey Bee Section Post Exam

Apis mellifera

1. Africanized bees are simply a strain of _____, the same species introduced from Europe that produces our honey and pollinates many of our plants. An African strain was introduced to South America in an effort to produce a bee better suited to the tropics.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

2. African bees were brought to Brazil in 1956 by biologists wanting to create an _____that would perform well in the South American climate. But in 1957, measures to contain the colonies were accidentally removed and several swarmed into the countryside.

A. African/European hybrid
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Venezuelans

3. Although AHBs weren't the monsters seen in popular fiction, their aggressive response, coupled with our lack of experience, led to the deaths of hundreds of people and animals. South Americans soon learned to live with the bees. For example, the highest recorded number of fatalities due to AHB attacks in Venezuela was nearly a hundred people in 1978, but those numbers dropped to twenty by 1985. Beekeepers learned to take proper precautions and Venezuelans became familiar with potential dangers. _____ are a real and significant threat for those who must live with them, but they can be dealt with as long as the appropriate precautions and control measures are taken.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Summary

4. Africanized honey bees (Apis mellifera scutellata) and European honey bees (Apis m. mellifera) are the same species - they look the same, sting in defense of themselves or their nest, can only sting once, and have the same venom. _____ are slightly smaller (but because the bees look so much alike only a laboratory analysis can tell them apart).

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

5. The Africanized honey bee is simply a hybrid honey bee, a result of breeding the European honey bee, Apis mellifera mellifera, with the African honey bee, Apis mellifera scutellata. The genetic differences in the hybrid Africanized bee make its habits different from those of the _____cultured in the United States.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Domestic European honey bee
E. An African strain
F. None of the Above

Barbed Stingers

6. _____workers have barbed stingers. When either type of bee stings a human, it leaves both the stinger and tiny, attached venom sac. This causes the bee to die soon after. If you are stung, simply scrape the stinger out to remove it.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. European and Africanized
F. None of the Above

Excessive Swarming

7. The AHB will swarm more frequently than the EHB. Typically, an EHB colony swarms once every year or two; an AHB colony may swarm 4-8 times a year. Generally, an _____ swarm is much smaller than an EHB swarm; some aren't much larger than a coffee cup.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Reproductive Capacity

8. Compared with the EHB, the AHB devotes a greater percentage of its nest to brood production and less to honey storage. Because the developmental period of the _____ is shorter than that of the EHB, it's able to produce more bees in less time.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Mating Advantage

9. An AHB colony produces more drones than an EHB colony of equal size. In areas where the AHB has become established, the _____ queens appear to mate with AHB drones at a much higher frequency than with EHB drones. Similar behavior in areas where large numbers of EHB colonies are maintained is being studied.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Identification

10. Identifying the _____is very difficult. The characteristics used for identification differ only slightly and overlap considerably among individuals. Accurate identification is not only difficult but time-consuming and expensive.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Topic 10 Modern European Bee Hive Section Post Exam

Bee Pollen

1. Bee pollen is the male seed of a flower blossom which has been gathered by the bees and to which special elements from the bees has been added. The honeybee collects _____and mixes it with its own digestive enzymes.

A. Nectar
B. Propolis
C. Honey
D. Pollen
E. Temperate propolis and tropical propolis
F. None of the Above

2. _____contains from one hundred thousand to five million pollen spores each capable of reproducing its entire species.

A. Propolis
B. Sources of resin
C. Nectar
D. Male seed of a flower blossom
E. One pollen granule
F. None of the Above

3. _____is a wax-like, resinous substance that bees collect from tree buds, or other botanical sources, and use as a sealant for unwanted open spaces in the hive.

A. Nectar
B. Propolis
C. Honey
D. Digestive enzymes
E. Temperate propolis and tropical propolis
F. None of the Above

4. Bees usually carry _____ out of and away from the hive. However if a small lizard or mouse, for example, found its way into the hive and died there, bees could be unable to carry it out through the hive entrance. In that case, they would attempt instead to seal the carcass in propolis, essentially mummifying it and making it odorless and harmless.

A. Propolis
B. Sources of resin
C. Nectar
D. Male seed of a flower blossom
E. Pollen
F. None of the Above

Composition of Propolis

5. The composition of propolis will vary from hive to hive, district to district, and from season to season. Normally it is dark brown in color, but it can be found in green, red, black and white hues, depending on the sources of resin found in the particular hive area. Bees are opportunists, and will gather what they need from_____.

A. Nectar
B. Propolis
C. Honey
D. Available sources
E. Temperate propolis and tropical propolis
F. None of the Above

6. The honeybees return to the hive and pass the _____onto other worker bees. These bees suck the nectar from the honeybee's stomach through their mouths. These "house bees" "chew" the nectar for about half an hour.

A. Nectar
B. Propolis
C. Honey
D. Digestive enzymes
E. Temperate propolis and tropical propolis
F. None of the Above

7. The bees make the _____ dry even faster by fanning it with their wings. Once the honey is gooey enough, the bees seal off the cell of the honeycomb with a plug of wax. The honey is stored until it is eaten.

A. Propolis
B. Sources of resin
C. Nectar
D. Male seed of a flower blossom
E. Pollen
F. None of the Above

Carbohydrate Element

8. _____form the energy (or carbohydrate) element of the bees' diet while pollen forms the proteinaceous part of their diet. Both pollen and nectar are essential to normal colony growth. Without nectar the colony has no energy with which to perform its normal tasks and without pollen young bees cannot be reared.

A. Nectar
B. Propolis
C. Honey
D. Nectar and honey
E. Temperate propolis and tropical propolis
F. None of the Above

Honey Bee Behaviors

9. _____is another of those honey bee behaviors that isn't completely understood, but we can draw some conclusions based on repeated observations.

A. Propolis collection
B. Stinging
C. Nectar chewing
D. Absconding
E. Reproduction
F. None of the Above

Colony Collapse Disorder

10. Adult bees are gone, but honey, _____and some brood remain behind. The difference in absconding and CCD is that the honey, pollen and brood are left behind Sometimes the queen and a handful of bees are left in the hive. Opportunists (SHB and wax moths) seem slower to take over when CCD is the cause of the dead hive.

A. Nectar
B. Propolis
C. Honey
D. Pollen
E. Temperate propolis and tropical propolis
F. None of the Above

Topic 11 Bee Control Section Post Exam

General Bee Control and Treatments

1. In some cases, attempting to destroy a nest becomes a greater health risk than simply tolerating and avoiding it. But nests, especially those of social species, should be destroyed if they are close enough to humans to pose a _____.

A. Nest(s)
B. Thousand bees
C. Hazard
D. First males
E. Stinging threat
F. None of the Above

2. The nests of honey bees, bumble bees, yellowjackets and hornets should always be approached with caution, preferably at night when most of the workers are present but reluctant to fly. Try not to carry a light, as wasps and bees may fly toward it. Instead, set the light aside or cover it with red cellophane (insects cannot see red light). If there is direct access to the nest, a fast-acting dust or wettable powder formulation can be applied. If possible, inject the material into the _____.

A. Nest(s)
B. Thousand bees
C. Net
D. Hole
E. Crack
F. None of the Above

3. If you must approach these nests during daytime, _____ can be used to keep the bees/wasps at bay, while you treat the nest as above. Heavy clothing or a “bee suit” can be worn for added protection.

A. Odor
B. Bear
C. Dusting device
D. Heat spray
E. An application
F. None of the Above

Mechanical Control Remove bees from the house with a vacuum cleaner

4. Unless you have a thousand bees swarming your face, the _____is a great way to get rid of bee pests that are in the house. Simply use the hose attachment and suck them into oblivion.

A. Smoke
B. Vacuum cleaner
C. Dusting device
D. Heat spray
E. An application
F. None of the Above

Specific Bee Treatments

5. Certain _____are harmful to bees. That’s why we require instructions for protecting bees on the labels of pesticides that are known to be particularly harmful to bees. This is one of many reasons why everyone must read and follow pesticide label instructions.

A. Smoke
B. Vacuum cleaner
C. Dusting device
D. Heat spray
E. Pesticides
F. None of the Above

Application of Pest Products

6. When a _____is completely filled to its capacity, or when dust is packed down inside the duster, dust does not come out in proper form.

A. Hand bellows duster
B. Vacuum cleaner
C. Dusting device
D. Back pack
E. Bee kill machine
F. None of the Above

Aldicarb

7. Aldicarb is a carbamate insecticide which is the active substance in the pesticide _____. It is effective against thrips, aphids, spider mites, lygus, fleahoppers, and leafminers, but is primarily used as a nematicide.

A. Four stereoisomers
B. An enzyme
C. Insecticidal concentrations
D. An insecticide and as molluscicide
E. Nicotine-based, systemic insecticide
F. None of the Above

Carbofuran

8. It is_____, which means that the plant absorbs it through the roots, and from here the plant distributes it throughout its organs where insecticidal concentrations are attained. Carbofuran also has contact activity against pests.

A. Four stereoisomers
B. An enzyme
C. Insecticidal concentrations
D. An insecticide and as molluscicide
E. A systemic insecticide
F. None of the Above

Diazinon

9. Diazinon kills insects by_____, an enzyme necessary for proper nervous system function. Diazinon has a low persistence in soil. The half-life is 2 to 6 weeks. The symptoms associated with diazinon poisoning in humans include weakness, headaches, tightness in the chest, blurred vision, nonreactive pinpoint pupils, excessive salivation, sweating, nausea, vomiting, diarrhea, abdominal cramps, and slurred speech.

A. Four stereoisomers
B. Inhibiting acetylcholinesterase
C. Insecticidal concentrations
D. An insecticide and as molluscicide
E. Nicotine-based, systemic insecticide
F. None of the Above

Imidacloprid

10. Imidacloprid is a nicotine-based, systemic insecticide, which acts as a neurotoxin and belongs to a class of chemicals called the_____.

A. Four stereoisomers
B. Neonicotinoids
C. Insecticidal concentrations
D. Molluscicide
E. Nicotine-based, systemic insecticide
F. None of the Above

Malathion

11. Malathion is a pesticide that is widely used in agriculture, residential landscaping, public recreation areas, and in public health pest control programs such as mosquito eradication. In the US, it is the most commonly used_____.

A. Four stereoisomers
B. Organophosphate insecticide
C. Insecticidal concentrations
D. Bird repellent
E. Nicotine-based, systemic insecticide
F. None of the Above

Methiocarb

12. Methiocarb is a chemical mainly used as a bird repellent, as an insecticide and as molluscicide. It is toxic to humans, not listed as_____, is toxic to reproductive organs, and a potent neurotoxin.

A. Four stereoisomers
B. An enzyme
C. Insecticidal concentrations
D. A carcinogen
E. Nicotine-based, systemic insecticide
F. None of the Above

Permethrin

General Information

13. Permethrin is_____. It is available in dusts, emulsifiable concentrates, smokes, ULV concentrates, and wettable-powder formulations.

A. Four stereoisomers
B. A broad-spectrum pyrethroid insecticide
C. Insecticidal concentrations
D. An insecticide
E. Systemic insecticide
F. None of the Above

Resmethrin

14. Resmethrin is _____with many uses, including control of the adult mosquito population. The resmethrin molecule has four stereoisomers determined by cis-trans orientation around a carbon triangle and chirality.

A. Four stereoisomer
B. An enzyme
C. Insecticidal spray
D. An insecticide
E. A pyrethroid insecticide
F. None of the Above

Colony cycle

15. Early in the colony cycle, the queen bumble bee compensates for potential reproductive competition from workers by suppressing _____by way of physical aggression and pheromonal signals. Thus, the queen will usually be the mother of all of the first males laid.

A. Their egg-laying
B. Pollen collecting
C. Honey production
D. The first males
E. Stinging threat
F. None of the Above

Topic 12 Bee-Related Inspections Section Post Exam

1. Bees, hives, frames, etc., must be handled by the beekeeper, an accompanying state apiarist, or an inspector with knowledge of bee colonies and/or beekeeping training. _____should be properly dressed with bee protective clothing/attire to minimize the risk of bee stings regardless of whether they personally handle a hive.

A. Beekeepers
B. Workers
C. Employees
D. Honey production handlers
E. Inspectors
F. None of the Above

2. To determine how a bee hive or colony was exposed to _____, the inspector must rely on additional observations or sample collection from the hive, the site where the bees died, areas adjacent to the bee hive, etc.

A. Chance of vandalism
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

3. _____should be collected from fresh honey in the top of the hive and pollen samples should be collected from uncapped (i.e., recently collected) pollen chamber near the brood chamber. Brood chamber, wax and other areas of the hive may contain residues collected over time.

A. Honey samples
B. Brood chamber
C. Pollen
D. Honey production
E. Brood wax
F. None of the Above

4. When sampling pollen and/or honey from comb, care should be taken not to include wax since wax can contain a different spectrum of pesticides than what may actually be present in pollen or honey. _____is generally dark brown to black. Honey wax is pale and light colored.

A. Unique batches
B. Brood chamber
C. Pollen
D. Honey production
E. Brood wax
F. None of the Above

5. Keep in mind that when sampling pollen from the comb, bees do not typically store pollen in_____. Pollen collected from a number of floral sources over time may be stored in the same cell of the comb.

A. Unique batches
B. Brood chamber
C. Pollen
D. Honey production
E. Brood wax
F. None of the Above

6. Prior to conducting an inspection related to bee deaths, the inspector should contact the laboratory that will analyze_____.

A. Any physical samples collected
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

7. _____may be located on wooden pallets to facilitate transport or to ready colonies for deployment to pollination locations; these colonies also tend to be of relatively uniform dimensions in order to facilitate stacking during transport. For colonies involved in honey production, the number of "supers" on the colony is based on the ability of that colony to produce honey.

A. Migratory colonies
B. Brood chamber
C. Pollen
D. Honey production
E. Nutritional and energy needs
F. None of the Above

8. Bee death may also be caused by exposure to pesticides. _____may occur through drift of pesticides from aerial or ground applications immediately adjacent to where colonies are located and/or to areas where bees may be foraging for food and/or water.

A. Chance of vandalism
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. Colony exposure
F. None of the Above

9. While bees will forage to meet the nutritional and energy needs of the colony and typically select forage that represents a preferred source of both pollen and nectar, they may also forage on less preferred sources of _____ based on availability.

A. Beekeeper
B. Brood chamber
C. Pollen
D. Honey production
E. Nutrition and water
F. None of the Above

10. Apiary locations are typically well hidden to limit the _____.

A. Chance of vandalism
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

Topic 13 Wasp Identification

10 final exam questions. (s) Means answer can be singular or plural.

Yellowjackets

1. The Blue Mud Wasp is another solitary wasp less common but present in our area. This wasp seems incapable of building her own mud nest, but is able to repair and use abandoned nests. The _____ is at the top of her menu.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Black Widow spider
E. D. (formerly known as V.) maculata
F. None of the Above

2. The social wasps can be fractured into 2 groups, the Yellowjackets / Hornets and_____.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. D. (formerly known as V.) maculata
F. None of the Above

Yellowjackets

3. These wasps tend to be medium sized and black with jagged bands of bright yellow—or white in the case of the aerial-nesting_____—on the abdomen and have a very short, narrow "waist," the area where the thorax attaches to the abdomen.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Digger bees and Andrenids
E. D. (formerly known as V.) maculata
F. None of the Above

4. V. vulgaris ranges across Canada and the northeastern United States. Common in higher elevations, it nests in shady evergreen forests around parks and camps in the western mountains and the eastern Appalachians. This species also is _____.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. D. (formerly known as V.) maculata
F. None of the Above

Eastern Yellowjacket (Vespula maculifrons)

5. The Eastern yellowjacket sometimes nests in building wall voids. Most yellowjackets have very slightly barbed stingers but the sting will not set in the victim's tissue like the barbed stinger of the honey bee. The stinger of _____, however, often sticks and when the insect is slapped off, the stinger may remain.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Andrenids
E. D. (formerly known as V.) maculata
F. None of the Above

German yellowjacket (Vespula germanica)

6. _____may be active in protected voids into November and December when outside temperatures are not severe.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. Colonies of this yellowjacket
F. None of the Above

Paper Wasp

7. Common areas their nests can be found include on walls or under eaves of homes and other buildings. Nest construction begins in the Spring and construction and maintenance continues as long as the colony continues to grow. _____gather fibers form old decaying wood or dead, dry plants, chew them up and mix the debris with water to make their grey paper nest. Populations in these nests rarely ever exceed 200.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Wasps
E. D. (formerly known as V.) maculata
F. None of the Above

Yellowjacket Management

Inspection

8. Entrance holes sometimes have bare earth around them. Entrance holes in structures are usually marked by_____. Nests high in trees should not be problems. Be sure to wear a bee suit or tape trouser cuffs tight to shoes.

A. Fast flying workers entering and leaving
B. Bare earth
C. Reddish dust
D. Rapidly lower nest temperature
E. Paralyzed tarantula
F. None of the Above

Pesticide Application

9. When possible, treat ground and aerial nests after dark [Workers are in the nest at that time]. More often than not, because of_____, treatment will be scheduled for the daytime.

A. The dark
B. Bare earth
C. Toxic dust
D. Rapidly lower nest temperature
E. Traditional work schedules
F. None of the Above

Umbrella Wasps (Polistes spp. and Mischocyttarus flavitarsis)

10. Umbrella wasps are also commonly referred to as paper wasps. These wasps have been named _____because their nests are the shape of an inverted umbrella. They usually have small nests and are usually inhabited by about 250 wasps.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. Umbrella wasps
F. None of the Above

Topic 14 Common Crop Insects and Pesticide Controls

18 final exam questions. (s) Means answer can be singular or plural.

Cotton Aphid

1. Cotton aphid is_____, and adults may be winged or wingless.

A. Most destructive
B. Controllable
C. Impressive in reproductive capacity
D. Highly variable in body size and color
E. Much more restrictive in their diet choice
F. None of the Above

Insecticides

2. _____are especially popular at planting time, most of which provide long-lasting protection against aphid population buildup during the critical and susceptible early stages of plant and some of which provide protection for 3 months.

A. Insect growth regulator(s)
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Systemic insecticide applications
F. None of the Above

Green Peach Aphid Control

3. Aphids are also_____. In broccoli and cauliflower, the presence of aphids in the heads makes the crop unmarketable.

A. An important pest of cole crops
B. Beneficial
C. Impressive reproducers
D. May be winged or wingless
E. Are much more restrictive in their diet
F. None of the Above

Cabbage Maggot

4. Cabbage maggots destroy the roots, particularly of seedlings, causing the plant to become stunted and wilt. In addition to the root damage, the plants may become more susceptible to diseases as pathogens enter through lesions left by the maggots. _____are more likely to be a problem in cool areas and in winter or spring crops.

A. Diamondback Moth Larvae
B. Imported Cabbageworm
C. Colorado Potato Beetle
D. Squash Bug
E. Cabbage maggots
F. None of the Above

5. Rove beetles (ground beetles) are an important natural enemy of _____. They eat eggs and parasitize pupae. Two nematode species ('Hb' and 'Hc') reportedly attack maggot populations in the soil, but their effectiveness has not been tested in controlled experiments.

A. Fall Armyworm
B. True armyworm
C. Vegetable Leafminers
D. Mexican Bean Beetle
E. Tomato caterpillar pests
F. None of the Above

Cabbage Looper

6. Cabbage loopers are the most destructive of the cabbageworms. One looper larvae does approximately three times the damage of one imported cabbageworm larvae and can consume almost 20 times as much foliage as a _____.

A. Diamondback Moth Larvae
B. Imported Cabbageworm
C. Colorado Potato Beetle
D. Squash Bug
E. Mexican Bean Beetle
F. None of the Above

Cowpea Curculio

7. Cowpea curculio adults pass the winter in crop refuse or weeds, particularly brown sedge, around previously infested plants. The _____, or weevils, leave their overwintering sites from April through July.

A. Flamer
B. Corn Earworm
C. Cowpea Curculio
D. European Corn Borer
E. Vetchworm
F. None of the Above

8. _____will be a serious pest of peas from first bloom until harvest. The current recommended spray schedule begins with a spray at first bloom and repeat treatments made on a five-day schedule until five applications have been made.

A. Flamer
B. Corn Earworm
C. Curculios
D. European Corn Borer
E. Imported Cabbageworm
F. None of the Above

European Corn Borer

9. European corn borer (ECB) is a pest of many crops including corn, peppers, potato, and snap bean. In corn, mature _____overwinter in stalks, ears, stubble and other plant residue left in the field. Adults emerge and lay eggs in masses on leaf undersides. In 3 to 10 days, larvae hatch and feed on the leaf surface.

A. Flamer
B. Corn Earworm
C. Curculios
D. European Corn Borer
E. European corn borer larvae
F. None of the Above

Fall Armyworm

10. Unlike the_____, which feeds primarily on corn and other grasses, the fall armyworm will feed on just about any plant. Damage is especially severe to late sweet corn and field corn, but the fall armyworm will eat kale, collards, turnip greens, cabbage, broccoli, spinach, snap beans, tomatoes, soybeans, potatoes, sweet potatoes, cucumbers, and many ornamentals.

A. Fall Armyworm
B. True armyworm
C. Vegetable Leafminers
D. Mexican Bean Beetle
E. Tomato caterpillar pests
F. None of the Above

Flea Beetles

11. Flea beetle attack is sudden and can destroy young plants, so fields should be scouted daily. Three to four generations can be produced annually. _____is effective, since flea beetles migrate in from weedy areas.

A. Killing larvae
B. Damage
C. Spray application
D. Leaving their overwintering sites from April through July
E. The only feasible approach to control
F. None of the Above

12. Flea beetle _____ also damage plant roots.

A. Fall Armyworm
B. Flea beetle larvae
C. Vegetable Leafminers
D. Mexican Bean Beetle
E. Tomato caterpillar pests
F. None of the Above

Tomato Fruitworm

13. _____ for the tomato fruitworm include Bt and Trichogramma wasps. Bt must be reapplied after 5 to 7 days.

A. Rotation
B. Elytron
C. Biological controls
D. Skeletonized with a lace-like appearance
E. Deposited brownish-red eggs in clusters
F. None of the Above

Pepper Maggot

14. Adult flies are attracted to rotting peppers, so removal of rotting fruit from fields reduces the attractiveness of fields to egg laying flies. Destroy infested fruit and cull piles as they serve as reservoirs for future infestations. Another cultural control is _____.

A. Rotation
B. Elytron
C. Biological controls
D. IPMs
E. IGRs
F. None of the Above

Pickleworm

15. Pickleworm populations can be lowered by planting early, plowing deeply before planting and rotating crops. Chemical control measures must be started as soon as pickleworm adults appear, since insecticides cannot reach _____inside the flower and developing fruit.

A. Pepper Maggot
B. Pickleworm
C. Squash Vine Borer
D. Squash Bug
E. Larvae
F. None of the Above

16. _____for adult pickleworms and monitoring guidelines are under development. Researchers in South Carolina found that in 42 cucumber fields over 2 years, where moths and larvae were present the adults were trapped before or during the same week that larvae were first detected in the crop.

A. Rotation controls
B. Spraying
C. Biological controls
D. Pheromone lures
E. Cluster lures
F. None of the Above

Squash Vine Borer

17. Squash vine borer is a _____, particularly squashes. Small, flattened brown eggs are deposited singly on leaf petioles, stems, and fruit. Soon after they enter the stem or fruit to feed, the larvae extrude sawdust-like frass from bore- holes in the stem or fruit. Damaged stems wilt and die and fruit are unmarketable.

A. Feed
B. Drain plants
C. A pest of cucurbits
D. Burrow deep into the soil
E. Serious infestation insect
F. None of the Above

Sweetpotato Weevil

18. _____are antlike and very small with dark metallic blue heads and wings and reddish orange bodies and legs. Adults and larvae feed on storage roots both before and after harvest.

A. Adult weevils
B. Sweetpotato Weevil
C. Dark-brown click beetle
D. Silverleaf Whitefly
E. Adults and larvae
F. None of the Above

Topic 15 Cotton Insect and Related Pest Identification

4 final exam questions. (s) Means answer can be singular or plural.

Agricultural Pest Insects

1. The idiomatic term "stink bug" is also applied to distantly related species such as Boisea trivittata, the "boxelder bug", and entirely different types of insects such as beetles in the genus Eleodes ("_____").

A. Shield bug(s)
B. Pinacate beetle(s)
C. Larvae(s)
D. Stink bug(s)
E. Boxelder bug(s)
F. None of the Above

2. Many stink bugs and _____ are considered agricultural pest insects, because they can create large populations, they suck plant juices and damage crop production, and they are resistant to many pesticides.

A. Shield bug(s)
B. Soybean looper(s)
C. Larvae(s)
D. Stink bug(s)
E. Boxelder bug(s)
F. None of the Above

Loopers

3. Two species of loopers are commonly found in cotton, the _____and the soybean looper.

A. Shield bug(s)
B. Soybean looper(s)
C. Larvae(s)
D. Cabbage looper
E. Aphid(s)
F. None of the Above

4. Distinguishing between these two species can be challenging, but in general, loopers are easily identified by the fact that they only have two pairs of abdominal prolegs, which causes them to move in a "_____" manner (most caterpillars have four pairs of abdominal prolegs).

A. Sliding
B. Looping
C. Rolling
D. Crawling
E. Dancing
F. None of the Above

Topic 16 - 1 node Ant Identification and Control Section Post Exam

6 final exam questions. (s) Means answer can be singular or plural

Ant Control

1. _____ can again be a useful tool in eradicating inside-the-home ant nests, although baits may not work as well with carpenter ants as with the other species mentioned.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Pressure or combination pressure/diffusion treatment
F. None of the Above

Carpenter Ants

2. Carpenter ants are most active in the evening hours, foraging for all kinds of food, both inside the house and outside. By following the ants, you may be able to tell where the nest is. Because carpenter ants keep the tunneled galleries very clean and push the _____out small holes in the wood, a small, fresh pile of sawdust under the nest timber is the usual sign of an active carpenter ant nest.

A. Red Imported Fire Ant(s)
B. Argentine ant(s)
C. Carpenter ant(s)
D. Red Harvester Ant(s)
E. Ghost Ant(s)
F. None of the Above

Ghost Ant
Foraging and feeding

3. Workers follow scent trails along the edges of structures for protection. They can often be spotted trailing under the edge of carpets and up the sides of the building, searching for _____.

A. Scent trails
B. Inside-the-home ant nests
C. Mounds of soft soil
D. Nest(s)
E. Brood chamber(s)
F. None of the Above

Harvester Ants

4. Red Harvester Ants can be aggressive and have a painful sting that spreads through the lymph nodes, sometimes causing reactions, especially in animals allergic to their venom. They can also bite ferociously.

Over the years, their numbers have been declining, and this has often been attributed to competition for food with the invasive Red Imported Fire Ant and the _____.

A. Red Imported Fire Ant(s)
B. Argentine ant(s)
C. Carpenter ant(s)
D. Red Harvester Ant(s)
E. Ghost Ant(s)
F. None of the Above

Locate and Treat Colonies

5. Drench colonies living in the soil or under items on the exterior with_____. With mulch, be sure to rake it back to get good penetration where colonies may be thriving. Follow up with a broadcast application of granule such as Talstar G.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Demand, Suspend, or Tempo
F. None of the Above

6. If you know with some certainty where the colony is living inside, then you can treat them directly by drilling a small hole into the wall void at the base (directly above the baseboard) and injecting a dust, such as _____.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Pressure or combination pressure/diffusion treatment
F. None of the Above

Topic 17 - 2 node Ant Identification and Control Section Post Exam

6 final exam questions. (s) Means answer can be singular or plural.

Black Ant

1. Simply picking up rocks and debris around the house will also help. If the ants are nesting in the house, the wall voids will need to be dusted with _____ in areas where ant baits are not to be used. Ant infestation are not easy to control and different strategies should be used depending on nest location and food preferences of the ants.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Demand, Suspend, or Tempo
F. None of the Above

Red Imported Fire Ants

2. Red imported fire ants (RIFA) are medium sized ants that build _____ rarely larger than 18" in diameter. The ants emerge out aggressively when they are disturbed and sting. Their sting usually leaves a white pustule the next day.

A. Scent trails
B. Inside-the-home ant nests
C. Mounds of soft soil
D. Nest(s)
E. Brood chamber(s)
F. None of the Above

Specific Actions

3. If the nest is exposed (e.g. due to remodeling or reroofing) you can use_____, such as bifenthrin, cyfluthrin, deltamethrin, or permethrin. Spray the insecticide directly into as much of the nest as possible.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. A liquid or aerosol ready-to-use insecticide
E. Pressure or combination pressure/diffusion treatment
F. None of the Above

Bait Treatments

4. In a process known as trophallaxis, one ant regurgitates its stomach contents to another ant. This food sharing behavior enables the bait to be spread throughout the colony before the _____takes effect.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Toxicant
F. None of the Above

Borates - Borate information is also found on page 416.

5. Unlike most other wood preservatives and organic insecticides that penetrate best in dry wood, borates are_____—they penetrate unseasoned wood by diffusion, a natural process. Wood moisture content and method and length of storage are the primary factors affecting penetration by diffusion.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Diffusible chemicals
F. None of the Above

6. Application methods include momentary immersion by_____; pressure or combination pressure/diffusion treatment; treatment of composite boards and laminated products by treatment of the wood finish; hot and cold dip treatments and long soaking periods; spray or brush-on treatments with borate slurries or pastes; and placement of fused borate rods in holes drilled in wood already in use.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Bulk dipping
F. None of the Above

Agricultural Pesticide Control CEU Training Assignment #2
Last Names H to M Only

You will have 90 days from the start of this course to have successfully pass this assignment with a score of 70 %. You may email the answers to TLC, info@tlch2o.com or fax the answers to TLC, (928) 272-0747. This assignment is available to you in a Word Format on TLC's Website. You can find online assistance for this course in Adobe Acrobat's Search function. Once you have paid the course fee, you will be provided complete course support from Student Services (928) 468-0665.

You will need to pick one of the following three assignments to complete. This selection process is based upon your last name. If your last name begins with an A to G, you will pick assignment number 1, if your last name begins with the letter H to M, you are to complete assignment number 2 and if your last name begins with the letter N-S, you will pick assignment number 3 and if your last name starts with T to Z you need to complete assignment #4. If you are a repeat student, please take the alterative version # 5 assignment.

Topic 1 Pesticide Fundamentals Introduction

12 final exam questions. (s) Means answer can be singular or plural.

Complete all topics before submitting the answers key.

Carbamates

1. Carbamate insecticides have similar toxic mechanisms to_____, but have a much shorter duration of action and are thus somewhat less toxic.

A. An insect growth regulator
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Phosphoric acid esters
F. None of the Above

Organophosphates and Carbamates Pesticides

2. Organophosphates are phosphoric acid esters or _____. When developed in the 1930s and 1940s, their original compounds were highly toxic to mammals.

A. Insect growth regulator
B. Temephos
C. Chlorpyrifos
D. Hormonal IGRs
E. Thiophosphoric acid esters
F. None of the Above

3. Malathion, dibrom, chlorpyrifos, temephos, diazinon and terbufos are _____.

A. Insect growth regulator(s)
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Phosphoric acid esters
F. None of the Above

Pyrethroids

4. To mimic the insecticidal activity of the natural compound pyrethrum another class of pesticides, pyrethroid pesticides, has been developed. These are_____, which is a sodium channel modulators, and are much less acutely toxic than organophosphates and carbamates.

A. Persistent
B. Environmentally safe
C. Non-persistent
D. Natural compound pyrethrum
E. Inhalation and dermal absorption hazards
F. None of the Above

5. _____ are formulated as emusifiable concentrates (EC), wettable powders (WP), granulars (G), and aerosols.

A. Insect growth regulator(s)
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Phosphoric acid esters
F. None of the Above

6. Certain _____exhibit striking neurotoxicity in laboratory animals when administered by intravenous injection, and some are toxic by the oral route.

A. Insect growth regulator(s)
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Phosphoric acid esters
F. None of the Above

7. Systemic toxicity by _____ are low, however—there have been very few systemic poisonings of humans by pyrethroids.

A. Atmospheric deposition
B. Applications
C. Higher organisms
D. Insecticidal activity of the natural compound pyrethrum
E. Inhalation and dermal absorption
F. None of the Above

Borates

8. Wood moisture content and method and length of storage are the primary factors affecting penetration by _____. Properly done, diffusion treatments permit deep penetration of large timbers and refractory (difficult-to-treat) wood species that cannot be treated well by pressure.

A. Inert ingredients
B. Pesticide levels
C. Water characteristics
D. Wood moisture content
E. Chemistry
F. None of the Above

Properties of Pesticides

9. The properties of pesticides determine their_____. The important properties are persistence, volatility, and solubility in water.

A. Atmospheric deposition
B. Environment
C. Insecticidal activity
D. Fate and behavior in the environment
E. Inhalation and dermal absorption
F. None of the Above

Properties of the Environment

10. Water characteristics also vary and influence pesticide behavior. Some of the characteristics are acidity, depth, temperature, clarity, flow rate,_____.

A. And inert ingredients
B. And pesticide levels
C. And water characteristics
D. And wood moisture content
E. Presence of biological organisms and general chemistry
F. None of the Above

11. Living organisms accumulate certain pesticides. Through the process of bioaccumulation, pesticides accumulate in lower organisms and are passed to higher organisms in the food chain when _____.

A. Deposition occurs
B. Absorbed
C. Inert ingredients are high
D. Insecticidal activity is absorbed
E. Inhaled and dermally absorbed
F. None of the Above

12. _____ are designed to preserve the active ingredients, make them easier to apply or improve their killing ability.

A. Inert ingredients
B. Pesticide levels
C. Product characteristics
D. Adjutant content
E. Chemistry
F. None of the Above

Topic 2 Agricultural Pesticide Application Section

15 final exam questions. (s) Means answer can be singular or plural.

New and Required EPA Information

1. All agricultural employers whose workers perform hand labor operations in fields, forests, nurseries, and greenhouses treated with pesticides, and handle pesticides in these locations are covered by the U.S. Environmental Protection Agency's worker protection standard revised _____.

A. 2015
B. 2013
C. 2004
D. 2014
E. 2005
F. None of the Above

Changes to EPA's Farm Worker Protection Standard

2. The regulation seeks to protect and reduce the risks of injury or illness resulting from agricultural workers' (those who perform_____ , such as harvesting, thinning, pruning) and pesticide handlers' (those who mix, load and apply pesticides) use and contact with pesticides on farms, forests, nurseries and greenhouses. The regulation does not cover persons working with livestock.

A. Application
B. Work
C. Apply
D. Hand-labor tasks in pesticide-treated crops
E. Tasks related to growing
F. None of the Above

Employers covered by the WPS must:

3. Mitigate exposures by requiring decontamination supplies be present and emergency assistance be available. Inform workers about pesticide hazards by _____(workers and handlers), safety posters, access to labeling information, and access to specific information (listing of treated areas on the establishment).

A. Requiring safety training
B. Emergency assistance
C. Information exchange(s)
D. Appropriate measure(s)
E. Safe operation
F. None of the Above

Agricultural Employers Responsibility
New WPS Requirements 2015-2018

4. Annual mandatory training to inform farmworkers on the required protections. This increases the likelihood that _____ will be followed.

A. Protective clothing
B. Retaliatory action(s)
C. WPS
D. Mitigate exposure(s)
E. Protections
F. None of the Above

5. _____ for farm owners and their immediate family with an expanded definition of immediate family.

A. No hand labor
B. No Contact
C. Continue the exemption
D. No entry
E. No exemption
F. None of the Above

What Types of Activities Are Covered?

6. The regulation seeks to protect and reduce the risks of injury or illness resulting from agricultural workers' (those who perform hand-labor tasks in pesticide-treated crops, such as harvesting, thinning, pruning) and pesticide handlers' (those who mix, load and apply pesticides) use and contact with pesticides on farms, forests, nurseries and greenhouses. The regulation does not cover _____working with livestock.

A. Worker(s)
B. Handler(s)
C. Persons
D. Hired workers and handlers
E. Hand labor operations
F. None of the Above

Training Changes

7. This is the area with the most changes. Under the revision growers subject to the WPS must now train their employees every year and they must be trained on Day 1 before they do any work in the crop areas if it has been less than _____ days since the last restricted entry interval expired. Make sure the employees sign off on their training and keep those on file. If the employee requests a copy of the sign off employers are now responsible to give them one copy.

A. 30
B. 45
C. 60
D. 7
E. 360
F. None of the Above

Central Location

8. The big change here is the need to keep SDS sheets (Safety Data Sheets). Many of you are unfamiliar with SDS sheets but they are the old MSDS sheets in a standardized format. You will need to "display" them at the central location for _____ days following their use. Keeping them in a loose leaf notebook at the central location is acceptable.

A. 30
B. 45
C. 60
D. 7
E. 360
F. None of the Above

Protection Against Retaliatory Acts

9. Requirements of this subpart designed to reduce the risks of illness or injury resulting from workers' occupational exposure to pesticides, including application and entry restrictions, the design of the warning sign, posting of warning signs, oral warnings, the availability of specific information about applications, and the_____.

A. WPS provisions
B. Protection against retaliatory acts
C. Annual mandatory training
D. Personal protective equipment
E. Safe level
F. None of the Above

Mitigating Exposures

10. _____ will be accomplished by requiring decontamination supplies and emergency assistance.

A. Emergency assistance
B. Labeling of the pesticide
C. PPE
D. Requirements in the standard
E. Mitigating exposure(s)
F. None of the Above

Labeling

11. Requires _____applying pesticides to obey instructions printed on the pesticide container's label.

A. Everyone
B. Handler(s)
C. Agricultural Employer(s)
D. Hired workers and handlers
E. Hand labor operations
F. None of the Above

12. Protect early-entry workers who are doing permitted tasks in pesticide-treated areas during an _____, including special instructions and duties related to correct use of personal protective equipment.

A. AEZ
B. REI
C. WPS
D. EPA
E. OSHA
F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

13. Emergency assistance making transportation available to a medical care facility in case of a pesticide injury or poisoning, and providing _____ to which the person may have been exposed.

A. Requirement(s)
B. Emergency assistance
C. Information exchange(s)
D. Appropriate measure(s)
E. Information about the pesticide(s)
F. None of the Above

Who is Covered by the 2015 WPS?

14. The WPS protects employees on farms, forests, nurseries, and greenhouses from occupational exposure to agricultural pesticides and covers two types of employees: Pesticide handlers: those who mix, load, or apply agricultural pesticides; clean or repair pesticide application equipment; or_____.

A. Application
B. Work
C. Apply
D. Mix, load, or apply agricultural pesticide(s)
E. Assist with the application of pesticides
F. None of the Above

Understanding the Worker Protection Standard?

15. The Worker Protection Standard (WPS) is a regulation issued by the U.S. Environmental Protection Agency. It covers pesticides that are used in the production of agricultural plants on farms, forests, nurseries, and greenhouses. The _____ requires you to take steps to reduce the risk of pesticide-related illness and injury if you (1) use such pesticides, or (2) employ workers or pesticide handlers who are exposed to such pesticides.

A. AEZ
B. REI
C. WPS
D. EPA
E. OSHA
F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

Complete all topics before submitting the answers key.

Topic 3 Common Pesticide Applications and Methods

17 final exam questions. (s) Means answer can be singular or plural.

Hand Operated Sprayers

1. Obtaining uniform coverage of an area is difficult with a hand operated sprayer. The operator must move the nozzle from side to side with _____.

A. Field crops
B. Action thresholds
C. Agriculture industry
D. Any action necessary
E. Compatibility agents
F. None of the Above

2. There are many other types of hand operated sprayers that are not widely used throughout the agriculture industry. Some may be used extensively for the production of_____.

A. Field crops
B. Action thresholds
C. Specific commodities
D. Any action necessary
E. Compatibility agents
F. None of the Above

Boom Sprayers

3. Most sprayers distribute pesticides using a boom with spray nozzles spaced at regular intervals. The most common example would be wide horizontal booms used on _____to spray field crops.

A. Motorized sprayers
B. Spray nozzles
C. Wide horizontal booms
D. Field sprayers
E. Airblast sprayers
F. None of the Above

Airblast sprayers

4. In field crops good coverage is relatively easy to achieve where the _____is small and close to the nozzles. In tree fruits, especially with large trees, good coverage with conventional sprayers is more difficult to achieve.

A. Field crops
B. Action thresholds
C. Agriculture industry
D. Target foliage
E. Compatibility agents
F. None of the Above

5. Examples of _____ include Arborchem and kerosene.
A. Insect growth regulator
B. Penetrating Agents
C. Action thresholds
D. Hormonal IGRs
E. Restricted pesticides
F. None of the Above

Insect Growth Regulators
Reduced Risk
6. Many IGRs are labeled "reduced risk" by the Environmental Protection Agency, meaning that they target _____while causing less detrimental effects to beneficial insects.
A. Insect growth regulator
B. Juvenile harmful insect populations
C. Action thresholds
D. Hormonal IGRs
E. Restricted pesticides
F. None of the Above

Hormonal IGRs
7. Hormonal IGRs typically work by mimicking or inhibiting the juvenile hormone (JH), one of the two major hormones involved in insect molting. IGRs can also inhibit the other hormone, ecdysone, large peaks of which trigger the_____.
A. Insect growth regulator
B. Chitin
C. Insect to molt
D. Hormonal IGRs
E. IPM program(s)
F. None of the Above

Hexaflumuron
8. Hexaflumuron (hexaflumeron) is a(n) _____ that interferes with insects' chitin synthesis.
A. Pesticide chemical application
B. Pyrethroid
C. Insect growth regulator
D. Restricted pesticide
E. Organophosphate
F. None of the Above

Diflubenzuron
9. Diflubenzuron is an insecticide of the _____class. It is used in forest management and on field crops to selectively control insect pests.
A. Benzamide
B. Pyrethroid
C. Insect growth regulator
D. Restricted pesticide
E. Organophosphate
F. None of the Above

Pyriproxyfen
10. Pyriproxyfen is a juvenile hormone analogue, preventing larvae from developing into adulthood and thus rendering them unable to reproduce. In the US pyriproxyfen is often marketed under the trade name Nylar. In Europe _____is known under the brand names Cyclio (Virbac) and Exil Flea Free TwinSpot (Emax).
A. Benzamide
B. Pyrethroid
C. Pyriproxyfen
D. Restricted pesticide
E. Organophosphate
F. None of the Above

Methoprene
11. Methoprene is a(n) _____ with activity against a variety of insect species including horn flies, mosquitoes, beetles, tobacco moths, sciarid flies, fleas (eggs and larvae), fire ants, pharaoh ants, midge flies and Indian meal moths.
A. Insect growth regulator
B. Chitin
C. Benzoyl-phenylurea termiticide
D. Hormonal IGRs
E. Benzamide
F. None of the Above

IPM Methods (Types of Pest Control)

12. IPM is not a single pest control method but, rather, a series of pest management evaluations, decisions and controls. In practicing IPM, growers who are aware of the potential for pest infestation follow _____approach.

A. Pesticide chemical application(s)
B. Pyrethroids
C. An insect growth regulator
D. Restricted pesticides
E. Organophosphates
F. None of the Above

Activity of Adjuvants

13. Adjuvants, or additive compounds, aid in the mixing, application or effectiveness of pesticides. One class of adjuvants, _____, allow(s) uniform mixing of compounds that would normally separate. Other types of adjuvants include spreaders, stickers, and synergists.

A. Restricted pesticides
B. Action thresholds
C. Agriculture industry
D. Pesticide chemical application(s)
E. Compatibility agents
F. None of the Above

Knowledge of Labeling Information

14. A _____must assure that handlers understand all of the labeling requirements related to safe use of pesticides before any handling activity takes place. The handler must also have access to the product labeling information during handling activities.

A. Handler(s)
B. Agricultural employer(s)
C. Handler employer
D. Early-entry workers
E. Worker(s)
F. None of the Above

What Information Must Be Displayed?- These are found under the Topic 4 Section

15. The following three types of information must be displayed at a central location before a pesticide is applied: Pesticide-specific application information, which must include: the location and description of the area to be treated, product name, EPA registration number, and_____, time and date the pesticide is scheduled to be applied, and restricted-entry interval for the pesticide.

A. WPS safety poster
B. Decontamination supplies
C. Restrictions
D. Pesticide-specific application information
E. Personal protective equipment (PPE)
F. None of the Above

16. The WPS requires that decontamination supplies be provided regardless of the _____. There is no exemption for employers with only a few employees.

A. WPS safety poster
B. Decontamination supplies
C. Restrictions
D. Pesticide-specific application information
E. Personal protective equipment (PPE)
F. None of the Above

17. Decontamination and emergency eyeflush water must, at all times when it is available to_____, be of a quality and temperature that will not cause illness or injury when it contacts the skin or eyes or if it is swallowed.

A. Handler(s)
B. Workers or handlers
C. Handler employer
D. Early-entry workers
E. Worker(s)
F. None of the Above

Topic 4 Decontamination and Emergency Requirements

14 final exam questions. (s) Means answer can be singular or plural.

Agricultural Employers Responsibility

1. _____must be trained on pesticide safety before they begin working at your grow operation. The training can be presented orally from written materials or by video (Check with your State agency to ensure this section is acceptable). In either case, the training must be in a language that the workers and handlers understand. You may use a translator such as a bilingual employee if necessary.

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Hired workers and handlers
E. All workers and handlers
F. None of the Above

Which Pesticides Uses are Covered?

2. Most pesticide uses involved in the production of agricultural plants on a farm, forest, nursery, or greenhouse are covered by the WPS. This includes pesticides used on plants, and pesticides used on the soil or planting medium the plants are (or will be) grown in. Both general-use and restricted-use pesticides are covered by the_____ . You will know that the product is covered by the WPS if you see the following statement in the Directions for Use section of the pesticide labeling.

A. Emergency assistance
B. Labeling of the pesticide
C. PPE
D. Requirements in the standard
E. WPS
F. None of the Above

Decontamination Supplies and Requirements

3. _____ must have adequate water for routine washing, soap and sufficient paper towels. Where there is no running water, early-entry workers and handlers must have at least 10 gallons of water for one employee and 20 gallons of water for two or more employees. The water must be of a “quality and temperature” that will not cause illness or injury.

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Workers, handlers and early-entry workers
E. Hand labor operations
F. None of the Above

4. Also, handlers must have a clean change of clothes -- such as _____ -- to put on in case their clothes become contaminated.

A. Coveralls
B. Rainsuit
C. Bloomers
D. Normal Clothes
E. PPE
F. None of the Above

5. Handlers and early-entry workers must also carry _____ of water with them (or it must be “immediately” nearby on their vehicle) for emergency eyeflushing when the pesticide label requires protective eyewear (goggles or faceshield).

A. A pint
B. Gallon
C. 2 gallons
D. 2 pints
E. 5 gallons
F. None of the Above

6. All permanent mixing/loading sites regardless of whether or not the label requires_____.

A. Protective eyewear
B. Decontamination site
C. Emergency eyewash
D. Permanent decontamination station(s)
E. All permanent mixing/loading sites
F. None of the Above

WPS Requires Providing Decontamination Sites

7. _____ must establish a decontamination site for all workers and handlers for washing off pesticides and pesticide residues. A decontamination site must be within a quarter (1/4) mile of the employees' work site.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Workers and handlers
E. Employe(es)
F. None of the Above

8. No-contact early-entry workers do not have to be provided the special protections required in Early Entry. However, they must be provided the following protections offered to other agricultural workers: information at a central location, pesticide safety training for workers, notification, restrictions during applications and during restricted-entry intervals, and emergency assistance. Decontamination supplies, however, need **not** be provided to _____ workers.

A. No hand labor
B. No Contact
C. Short-term
D. No entry
E. No-contact early-entry
F. None of the Above

Decontamination Supply Requirements

9. Employers must make sure to provide handlers with decontamination supplies for _____and pesticide residues while they are performing handling tasks and to workers who are in a pesticide-treated area and are performing tasks that involve contact with anything that has been treated with pesticides, including soil, water, or plant surfaces.

A. Washing off pesticides
B. Work
C. Apply
D. Mix, load, or apply agricultural pesticide(s)
E. Tasks related to growing
F. None of the Above

Worker Decontamination Supplies

10. Supplies must be located within ¼ mile of the work area if a WPS-labeled pesticide has been used within _____ days, except in those cases where low-risk pesticides (those with REIs of four hours or less) are used.

A. 72
B. 4
C. 24
D. 30
E. 48
F. None of the Above

Handler Decontamination Supplies

11. Supplies must be provided at the mixing site and within ¼ mile of the application area. Supplies may be in the application area if protected from drift and spray residues. Supplies must include the following: Water—a minimum of _____gallons per handler or a potable source of tap water

A. 1
B. 5
C. 10
D. 2
E. 3
F. None of the Above

12. _____ if the pesticides used require protective eyewear as stated on the label; potable water may be used as eyewash

A. Work Activities
B. Decontamination site
C. Emergency eyewash
D. Permanent decontamination station(s)
E. All permanent mixing/loading sites
F. None of the Above

Emergency Information

13. Provide to the worker or handler or to treating medical personnel, promptly upon emergency vehicle, request, any obtainable information on: product name, EPA registration number, and active ingredients for any product(s) to which the person may have been exposed, antidote, first aid, _____and other medical or emergency information from the product labeling, description of the way the pesticide was being used, circumstances of the worker's or handler's exposure to the pesticide.

A. Emergency assistance
B. Labeling of the pesticide
C. Statement of practical treatment
D. Requirements in the standard
E. Mitigating exposure(s)
F. None of the Above

14. If there is reason to believe that a worker has been poisoned or injured by pesticides, the employer must make prompt transportation to a medical facility available to the worker. On request the employer must provide, to either the worker or medical personnel providing treatment, information about the product including the EPA registration number, active ingredients in any product the worker might have been exposed to in the past _____ days, antidote and other first aid information from the product labeling, and information about the application and the exposure of workers to the pesticide.

A. 30
B. 45
C. 60
D. 7
E. 360
F. None of the Above

Topic 5 Personal Protection Equipment, Safety, Health Section

15 final exam questions. (s) Means answer can be singular or plural.

Personal Protective Equipment (PPE)

1. One of the changes that happened as a direct result of implementing the WPS regulation is that protective clothing requirements are more clearly and completely listed on product labels. Each product label should list the _____ to be worn when the product is being used or when the potential for exposure to the product exists.

A. Coveralls
B. Rainsuit
C. Chemical-resistant clothing
D. Clean change of Clothes
E. Specific PPE
F. None of the Above

2. _____must supply handlers with personal protective equipment (PPE) as required by the pesticide label. All PPE should be stored in an area separate from pesticides.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Workers and handlers
E. Employe(es)
F. None of the Above

Application Exclusion Zone" or AEZ

3. The "Application Exclusion Zone" or AEZ is a new term used in the _____ rule and refers to the area surrounding the pesticide application equipment that must be free of all persons other than appropriately trained and equipped handlers during pesticide applications.

A. AEZ
B. REI
C. WPS
D. EPA
E. OSHA
F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

How is the AEZ measured and the size of the AEZ determined?

4. The AEZ is measured from the application equipment. The AEZ also moves with the application equipment like a halo around the_____.

A. No responsibilitie(s)
B. Applicable AEZ distance(s)
C. AEZ
D. Application equipment
E. Planting medium
F. None of the Above

5. _____ varies depending on the type of application and other factors, including droplet size, and height of nozzles above the planting medium.

A. No responsibilitie(s)
B. Applicable AEZ distance(s)
C. The size of an AEZ
D. Halo around the application equipment
E. Planting medium
F. None of the Above

6. The AEZ is _____ feet for aerial, air blast, fumigant, smoke, mist and fog applications, as well as spray applications using very fine or fine droplet sizes (a volume median droplet diameter (VMD) size of less than 294 microns).

A. 50
B. 10
C. 500
D. 25
E. 100
F. None of the Above

Prevention, Recognition, First Aid Treatment of Heat-Related Illness
Heat-Related Illnesses and First Aid

7. _____, the most serious form of heat-related illness, happens when the body becomes unable to regulate its core temperature. Sweating stops and the body can no longer rid itself of excess heat. Signs include confusion, loss of consciousness, and seizures.

A. Tired muscles
B. Heat stroke
C. Heat rash
D. Heat exhaustion
E. Heat cramps
F. None of the Above

8. _____ are caused by the loss of body salts and fluid during sweating. Low salt levels in muscles cause painful cramps.

A. Heat rash
B. Heat stroke
C. Tired muscles
D. Heat exhaustion
E. Heat cramps
F. None of the Above

9. _____—those used for performing the work—are usually the ones most affected by cramps. Cramps may occur during or after working hours.

A. Heat rash
B. Heat stroke
C. Tired muscles
D. Heat exhaustion
E. Heat cramps
F. None of the Above

10. _____, also known as prickly heat, is skin irritation caused by sweat that does not evaporate from the skin. Heat rash is the most common problem in hot work environments.

A. Tired muscles
B. Heat stroke
C. Heat rash
D. Heat exhaustion
E. Heat cramps
F. None of the Above

Why Rinse Pesticide Containers?

11. Proper rinsing of pesticide containers is easy to do, saves money, and helps protect people and the environment. It also helps prevent potential problems with un-rinsed containers, rinsate storage, and pesticide wastes. Even during a busy season the few extra minutes it takes to properly _____is time well spent.

A. Triple punched
B. Properly rinsed
C. Pesticide container
D. Dispose of the rinsate
E. Rinse empty pesticide containers
F. None of the Above

12. Rinsate from the containers, when added directly into the sprayer tank, efficiently and economically uses all pesticide in the container. This eliminates the need to store and later dispose of the _____.

A. Triple punched
B. Properly rinsed
C. Pesticide containers
D. Rinsate
E. Rinsate storage, and pesticide wastes
F. None of the Above

Rinsing Helps Protect the Environment

13. When contamination occurs, plants and animals may be harmed and water supplies affected. _____is always better than cleanup. Rinsing also helps in reducing the problem of handling pesticide wastes.

A. Triple punched
B. Properly rinsed
C. Pesticide containers
D. Prevention of environmental contamination
E. Rinsate storage, and pesticide wastes
F. None of the Above

14. No matter how an empty pesticide container is disposed of, it must be properly _____.

A. Triple punched
B. Properly rinsed
C. Rinsed and triple punched
D. Dispose of the rinsate
E. Rinsate storage, and pesticide wastes
F. None of the Above

15. Both federal and state laws require rinsing. Landfill operators and recyclers can only accept properly_____. Pesticide containers should only be offered to recycling projects designed for pesticide containers and not general plastic and metal recycling programs. Pesticide container recycling project personnel will inspect containers to determine if they have been properly rinsed.

A. Triple punched
B. Properly rinsed
C. Rinsed containers
D. Dispose of the rinsate
E. Rinsate storage, and pesticide wastes
F. None of the Above

Complete all topics before submitting the answers key.

Topic 6 WPS Required Training Section

15 final exam questions. (s) Means answer can be singular or plural.

The training must include, at a minimum, all of the following after January 2, 2017:

1. Where and in what form pesticides may be encountered during _____.

A. Work Activities
B. Toxicity and exposure
C. Pesticide(s)
D. Pesticide application
E. Pesticide applicator
F. None of the Above

Worker Training 2018

2. The pesticide safety training for _____ under the revised WPS (subparts D, E, F and G of 40 CFR Part 170) must be presented either orally from written materials or audio-visually, at a location that is reasonably free from distraction and conducive to training.

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Hired workers and handlers
E. Hand labor operations
F. None of the Above

3. The _____must be present during the entire training program and must respond to workers' questions.

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Hired workers and handlers
E. Worker trainer
F. None of the Above

4. The responsibility of agricultural employers to provide specific information to workers before directing them to perform early-entry activities. _____ must be 18 years old to perform early-entry activities.

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Hired workers and handlers
E. Hand labor operations
F. None of the Above

5. After working in pesticide treated areas, remove work boots or shoes before entering your home, and _____and wash or shower before physical contact with children or family members.

A. Work Activities D. Pesticide application
B. Pesticide applicator E. Potential hazards from toxicity and exposure
C. Remove work clothes F. None of the Above

6. The rule prohibits agricultural employers from intimidating, threatening, coercing, or discriminating against any worker or handler for complying with or attempting to comply with the_____ , or because the worker or handler provided, caused to be provided or is about to provide information to the employer or the EPA or its agents regarding conduct that the employee reasonably believes violates this part, and/or made a complaint, testified, assisted, or participated in any manner in an investigation, proceeding, or hearing concerning compliance with this rule.

A. Requirement(s) D. Appropriate measure(s)
B. Emergency assistance E. Safe operation
C. Requirements of this rule F. None of the Above

Decontamination Supplies

7. Provide_____ with decontamination supplies at each mixing and loading site. 170.509 (c)(1)

A. Worker(s) D. Workers and handlers
B. Handler(s) E. Employe(es)
C. Employer(s) F. None of the Above

8. When a product requires protective eyewear for handlers, and/or when using a closed system under pressure, provide the following in mixing and loading areas: a system that can deliver gently running water at 0.4 gallons per minute for at least _____ minutes or 6 gallons of water in containers suitable for providing a gentle eye-flush for about 15 minutes. 170.509 (d)(1)

A. 60 D. 15
B. 20 E. 30
C. 45 F. None of the Above

9. When applying a product that requires protective eyewear, provide 1 pint of water per handler in portable containers that are immediately available to each _____. 170.509 (d)(2)

A. Worker(s) D. Workers and handlers
B. Handler(s) E. Employe(es)
C. Employer(s) F. None of the Above

Emergency Assistance

10. Promptly provide to the treating medical personnel, information related to each pesticide product to which the person may have been exposed: Safety Data Sheet, Product name, EPA registration number, and_____ .

A. Requirement(s) D. Appropriate measure(s)
B. Emergency assistance E. Active ingredient(s)
C. Information exchange(s) F. None of the Above

Labeling Information Section

11. A handler employer must assure that handlers understand all of the labeling requirements related to safe use of pesticides before any handling activity takes place. The handler must also have access to the _____ during handling activities.

A. Emergency assistance D. Product labeling information
B. Labeling of the pesticide E. Mitigating exposure(s)
C. PPE F. None of the Above

Safe Operation of Equipment
12. A handler employer must assure that handlers are instructed in the safe operation of all equipment they will be using. It is the handler-employer's responsibility to assure that the equipment is working properly and to inform employees, when appropriate, that the equipment may be contaminated with pesticides and to explain the correct way to handle such_____.
A. Requirement(s) D. Appropriate measure(s)
B. Emergency assistance E. Safe operation
C. Equipment F. None of the Above

Emergency Assistance
13. A handler employer must provide the _____ to handlers as discussed for workers.
A. Requirement(s) D. Appropriate measure(s)
B. Same emergency assistance E. Safe operation
C. Information exchange(s) F. None of the Above

Label Requirements
14. When these requirements appear on pesticide labels, all end-users must meet them unless exempt. Exempt end-users should voluntarily obey the _____ because of the dangers of pesticide exposure.
A. Requirement(s) D. Appropriate measure(s)
B. Emergency assistance E. Safe operation
C. Information exchange(s) F. None of the Above

Workers and Handlers Section
Who Must Protect Workers and Handlers?
15. Employers are responsible for making sure that workers and handlers receive the protections required by the pesticide labeling and the WPS. The term “employer” has a special meaning in the WPS — you are an employer even though you are _____ or use only members of your own family to do the work on your establishment.
A. Worker(s) D. Self-employed
B. Handler(s) E. Employe(es)
C. Employer(s) F. None of the Above

Topic 7 Beneficial Insect Identification
18 final exam questions. (s) Means answer can be singular or plural.

Mealybug Destroyers
1. Both the larvae and adults of this lady beetle feed on mealybugs. They may also feed on aphids and immature scale insects. Each adult female lays hundreds of eggs in mealybug egg masses. When the beetle larvae hatch, they feed on _____.
A. Scale insects or spider mites D. Spider mites, thrips, and their eggs
B. White silken cocoons of parasites E. Immature mealybugs
C. Restriction of the colony F. None of the Above

Ground Beetles
2. While _____may vary widely, they are usually shiny. Black is a common color, sometimes with a metallic sheen of another color on their wing covers. Most ground beetles feed at night and hide in the soil or under debris during the day.
A. A starch in their saliva D. Yellowish to creamy
B. Chagas disease E. Very sensitive to touch
C. Shapes and colors F. None of the Above

Lady Beetles

3. Lady beetles that feed on scale insects or spider mites do not lay their eggs in masses. Instead, eggs are laid singly on leaves or_____. Most lady beetle larvae are elongated in form and slightly pointed at the rear.

A. Under the cover of the scale insect
B. White silken cocoons of parasites
C. Restriction of the colony
D. Spider mites, thrips, and their eggs
E. Nectar- or pollen-producing plants
F. None of the Above

Rove Beetles

4. These fascinating insects may resemble a tiny scorpion when they hold the tip of their abdomen up in the air. They are _____and measure 1/10 to one inch long. Depending upon species, rove beetles prey upon aphids, springtails, mites, nematodes, slugs, snails, fly eggs and maggots. They also eat and help break down decaying organic material.

A. Slow moving
B. Fast moving
C. Small
D. Yellowish to creamy
E. Very sensitive to touch
F. None of the Above

Soldier Beetle

5. The adults are_____. They supplement their diet with nectar and pollen and can be minor pollinators. Soldier beetle populations can be increased by planting good nectar- or pollen-producing plants such as Asclepias or Solidago.

A. Similar to scale insects or spider mites
B. White silken cocoons of parasites
C. Part of the colony
D. Very sensitive to touch
E. Especially important predators of aphids
F. None of the Above

Assassin Bug

6. Some blood-sucking species, particularly Triatoma spp. and other members of the subfamily Triatominae (e.g., Paratriatoma hirsuta), are also known as kissing bugs due to their habit of biting humans in their sleep on the soft tissue of the lips and eyes; a number of these haematophagous species, located in Central and South America, are able to _____.

A. Have a starch in their saliva
B. Transmit venereal disease
C. Eat bananas
D. Emit a yellowish to creamy ice cream flavor
E. Kiss people
F. None of the Above

Minute Pirate Bug

7. Adults are 2–5 mm long and feed mostly on _____, but will also feed on pollen and vascular sap. These predators are common in gardens and landscapes. They have a fairly painful bite, but are not poisonous.

A. Scale insects or spider mites
B. White silken cocoons of parasites
C. Aphid lions
D. Spider mites, thrips, and their eggs
E. Nectar- or pollen-producing plants
F. None of the Above

Green Lacewings

8. They are voracious predators, attacking most insects of suitable size, especially soft-bodied ones (aphids, caterpillars and other insect larvae, insect eggs, and at high population densities also each other). Therefore, the larvae are colloquially known as "aphid lions" (also spelled "aphidlions") or "_____", similar to the related antlions. Their senses are weakly developed, except that they are very sensitive to touch.

A. Scale insects
B. Parasites
C. Aphid wolves
D. Ant tigers
E. Green monsters
F. None of the Above

Syrphid flies -Hoverflies

9. Hoverflies, sometimes called flower flies or syrphid flies, make up the insect family Syrphidae. As their common name suggests, they are often seen hovering or nectaring at flowers; the adults of many species feed mainly on nectar and pollen, while the larvae (maggots) eat_____.

A. Scale insects or spider mites
B. Other parasites
C. A wide range of foods
D. Spider mites, thrips, and their eggs
E. Nectar- or pollen-producing plants
F. None of the Above

Parasitic Wasps

10. Females of many species have a spine-like egg-laying structure (ovipositor) at the tip of the abdomen. Larval stages are usually not observed unless they are dissected from hosts (internal parasites) or_____.

A. Omit a starch in their saliva
B. Present Chagas disease
C. Detected on the host (external parasites)
D. Are yellowish to creamy
E. Are very sensitive to touch
F. None of the Above

Bald-faced Hornet

11. Every year, queens that were born and fertilized at the end of the previous season begin a new colony. The _____ selects a location for its nest, begins building it, lays a first batch of eggs and feeds this first group of larvae.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Queen(s)
D. Larvae(s)
E. Honey bee(s)
F. None of the Above

Honey Bees Apidae Family of Insects

12. Currently, there are only seven recognized species of _____ with a total of 44 subspecies, though historically, anywhere from six to eleven species have been recognized.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

Bumble Bee

13. Bumble bees form colonies. These colonies are usually much less extensive than those of honey bees. This is due to a number of factors including the small physical size of the nest cavity, the responsibility of a _____for the initial construction and reproduction that happens within the nest, and the restriction of the colony to a single season (in most species).

A. Single female
B. Mason bee(s)
C. Queen(s)
D. Larvae(s)
E. Honey bee(s)
F. None of the Above

Mason Bee

14. Smaller than a _____, mason bees resemble house flies more than honey bees. They are deep blue-black in color and have no stripes. Mason bees are native to North America. They are active pollinators between cherry blossom and apple blossom season, and then die out by summer.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

15. Attract _____ by providing them a home. Drill holes exactly 5/16-inch in diameter into wooden blocks and mount the blocks by cherry blossom season facing morning sun.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

Cuckoo Bee

16. Cuckoo Bees are parasites, in that the female cuckoo bee lays her eggs in the nest of other bees, primarily_____.

A. Digger bees and Andrenids
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

Centipede

17. Like insects, centipedes breathe through a tracheal system, typically with a single opening, or spiracle on each body segment. They excrete waste through _____

A. Scopa
B. Involucrum
C. Rectum
D. A single pair of malpighian tubules.
E. A starch in their saliva
F. None of the Above

Tachnid Flies

18. Adult flies feed on flowers and nectar from aphids and scale insects. As many species typically feed on pollen, they can be important pollinators of some plants, especially at higher elevations in mountains where bees are relatively few. The taxonomy of this family presents many difficulties. It is largely based on_____, but also on reproductive habits and on the immature stage.

A. Scopa
B. Involucrum
C. Number of factors
D. Morphological characters of the adult flies
E. Starch in their saliva
F. None of the Above

Topic 8 Honey Bee Detailed Section Post Exam

Biology and Habits of the Honey Bee

1. The honey bee undergoes complete metamorphosis, passing through four stages: egg, larva, pupa, and adult. Bees develop into three different castes:_____, queens, and drones.

A. Pupa
B. Soldiers(s)
C. Virgin queen(s)
D. Scout bees
E. Workers
F. None of the Above

2. Developmental time and longevity vary with each caste and among races. When honey bees emerge as adults, they continue to develop. At first their body is soft, but the cuticle hardens in about 12-24 hours. During the next few days, glands and reproductive organs (in the_____) develop and mature.

A. Drones
B. Queen(s)
C. Virgin queen(s)
D. Scout bees
E. Queens and drones
F. None of the Above

3. _____ produce semen in about 12 days and queens begin to lay eggs about three days after mating. In a typical colony there will be only one laying queen, about 100 – 300 drones, and about 20,000 - 60,000 workers.

A. Drones
B. Kings(s)
C. Soldiers(s)
D. Scout bees
E. Each caste and among races
F. None of the Above

Virgin Queens

4. When mature, virgin queens take a mating flight and mate with 10-15 _____. In about three days the queen begins to lay eggs.

A. Drones
B. Queen(s)
C. Virgin queen(s)
D. Scout bees
E. Workers
F. None of the Above

5. _____may lay as many as 1,500 eggs in a single day and around 200,000 eggs in a year. The queen controls whether or not the eggs are fertilized, using sperm stored in her spermatheca.

A. Drones
B. A queen
C. Virgin queen(s)
D. Scout bees
E. Each caste and among races
F. None of the Above

The Domicile

6. The AHB swarms much more frequently than other honey bees. A colony is a group of bees with comb and brood. _____may either be managed (white hive boxes maintained by professional beekeepers) or wild (feral).

A. The AHB swarms
B. Swarm
C. The colony
D. Swirling mass of flying bees
E. Brood
F. None of the Above

7. A group of bees that are in the process of leaving their parent colony and starting a nest in a new location is called a "_____." Usually a new queen is reared to stay with the parent colony and the old queen flies off with the swarm.

A. AHB swarms
B. Swarm
C. Scout bee(s)
D. Swirling mass of flying bees
E. Brood
F. None of the Above

8. _____ often locate potential nest sites prior to swarming, but the swarm may spend a day or two clustered in impressive, hanging clumps on branches or in other temporary locations until the bees settle on a new nesting site. If they can't find a suitable location, the bees may fly several miles and cluster again.

A. The AHB swarms
B. Swarm
C. Scout bee(s)
D. Swirling mass of flying bees
E. Drones
F. None of the Above

9. When the swarm emerges from its domicile and settles in a cluster on a tree, certain "_____" communicate to it the availability of other domiciles. At least some of these domiciles may have been located by the scout bees before the swarm emerged.

A. Drones
B. Queen(s)
C. Virgin queen(s)
D. Scout bees
E. Each caste and among races
F. None of the Above

10. Pyrethrins are_____**.** Pyrethrins, bee killers derived from the flowers of the chrysanthemum, work quite well as a spray for controlling bee populations. Pyrethrins are not generally used to destroy entire bee colonies. Instead, as they only kill the bees that get sprayed directly, pyrethrins are usually just used to keep populations from getting too out of hand. Microcare Aerosol is a good brand.

A. Another natural bee pesticide
B. Hazardous
C. Used for bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

Topic 9 Africanized Honey Bee Section Post Exam

Apis mellifera

1. Africanized bees are simply a strain of _____, the same species introduced from Europe that produces our honey and pollinates many of our plants. An African strain was introduced to South America in an effort to produce a bee better suited to the tropics.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

2. African bees were brought to Brazil in 1956 by biologists wanting to create an _____that would perform well in the South American climate. But in 1957, measures to contain the colonies were accidentally removed and several swarmed into the countryside.

A. African/European hybrid
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Venezuelans

3. Although AHBs weren't the monsters seen in popular fiction, their aggressive response, coupled with our lack of experience, led to the deaths of hundreds of people and animals. South Americans soon learned to live with the bees. For example, the highest recorded number of fatalities due to AHB attacks in Venezuela was nearly a hundred people in 1978, but those numbers dropped to twenty by 1985. Beekeepers learned to take proper precautions and Venezuelans became familiar with potential dangers. _____ are a real and significant threat for those who must live with them, but they can be dealt with as long as the appropriate precautions and control measures are taken.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Summary

4. Africanized honey bees (Apis mellifera scutellata) and European honey bees (Apis m. mellifera) are the same species - they look the same, sting in defense of themselves or their nest, can only sting once, and have the same venom. _____ are slightly smaller (but because the bees look so much alike only a laboratory analysis can tell them apart).

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

5. The Africanized honey bee is simply a hybrid honey bee, a result of breeding the European honey bee, Apis mellifera mellifera, with the African honey bee, Apis mellifera scutellata. The genetic differences in the hybrid Africanized bee make its habits different from those of the _____cultured in the United States.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Domestic European honey bee
E. An African strain
F. None of the Above

Barbed Stingers

6. _____workers have barbed stingers. When either type of bee stings a human, it leaves both the stinger and tiny, attached venom sac. This causes the bee to die soon after. If you are stung, simply scrape the stinger out to remove it.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. European and Africanized
F. None of the Above

Excessive Swarming

7. The AHB will swarm more frequently than the EHB. Typically, an EHB colony swarms once every year or two; an AHB colony may swarm 4-8 times a year. Generally, an _____ swarm is much smaller than an EHB swarm; some aren't much larger than a coffee cup.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Reproductive Capacity

8. Compared with the EHB, the AHB devotes a greater percentage of its nest to brood production and less to honey storage. Because the developmental period of the _____ is shorter than that of the EHB, it's able to produce more bees in less time.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Mating Advantage

9. An AHB colony produces more drones than an EHB colony of equal size. In areas where the AHB has become established, the _____ queens appear to mate with AHB drones at a much higher frequency than with EHB drones. Similar behavior in areas where large numbers of EHB colonies are maintained is being studied.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Identification

10. Identifying the _____is very difficult. The characteristics used for identification differ only slightly and overlap considerably among individuals. Accurate identification is not only difficult but time-consuming and expensive.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Topic 10 Modern European Bee Hive Section Post Exam

Bee Pollen

1. Bee pollen is the male seed of a flower blossom which has been gathered by the bees and to which special elements from the bees has been added. The honeybee collects _____and mixes it with its own digestive enzymes.

A. Nectar
B. Propolis
C. Honey
D. Pollen
E. Temperate propolis and tropical propolis
F. None of the Above

2. _____contains from one hundred thousand to five million pollen spores each capable of reproducing its entire species.

A. Propolis
B. Sources of resin
C. Nectar
D. Male seed of a flower blossom
E. One pollen granule
F. None of the Above

3. _____is a wax-like, resinous substance that bees collect from tree buds, or other botanical sources, and use as a sealant for unwanted open spaces in the hive.

A. Nectar
B. Propolis
C. Honey
D. Digestive enzymes
E. Temperate propolis and tropical propolis
F. None of the Above

4. Bees usually carry _____ out of and away from the hive. However if a small lizard or mouse, for example, found its way into the hive and died there, bees could be unable to carry it out through the hive entrance. In that case, they would attempt instead to seal the carcass in propolis, essentially mummifying it and making it odorless and harmless.

A. Propolis
B. Sources of resin
C. Nectar
D. Male seed of a flower blossom
E. Pollen
F. None of the Above

Composition of Propolis

5. The composition of propolis will vary from hive to hive, district to district, and from season to season. Normally it is dark brown in color, but it can be found in green, red, black and white hues, depending on the sources of resin found in the particular hive area. Bees are opportunists, and will gather what they need from_____.

A. Nectar
B. Propolis
C. Honey
D. Available sources
E. Temperate propolis and tropical propolis
F. None of the Above

6. The honeybees return to the hive and pass the _____onto other worker bees. These bees suck the nectar from the honeybee's stomach through their mouths. These "house bees" "chew" the nectar for about half an hour.

A. Nectar
B. Propolis
C. Honey
D. Digestive enzymes
E. Temperate propolis and tropical propolis
F. None of the Above

7. The bees make the _____ dry even faster by fanning it with their wings. Once the honey is gooey enough, the bees seal off the cell of the honeycomb with a plug of wax. The honey is stored until it is eaten.

A. Propolis
B. Sources of resin
C. Nectar
D. Male seed of a flower blossom
E. Pollen
F. None of the Above

Carbohydrate Element

8. _____form the energy (or carbohydrate) element of the bees' diet while pollen forms the proteinaceous part of their diet. Both pollen and nectar are essential to normal colony growth. Without nectar the colony has no energy with which to perform its normal tasks and without pollen young bees cannot be reared.

A. Nectar
B. Propolis
C. Honey
D. Nectar and honey
E. Temperate propolis and tropical propolis
F. None of the Above

Honey Bee Behaviors

9. _____is another of those honey bee behaviors that isn't completely understood, but we can draw some conclusions based on repeated observations.

A. Propolis collection
B. Stinging
C. Nectar chewing
D. Absconding
E. Reproduction
F. None of the Above

Colony Collapse Disorder

10. Adult bees are gone, but honey, _____and some brood remain behind. The difference in absconding and CCD is that the honey, pollen and brood are left behind Sometimes the queen and a handful of bees are left in the hive. Opportunists (SHB and wax moths) seem slower to take over when CCD is the cause of the dead hive.

A. Nectar
B. Propolis
C. Honey
D. Pollen
E. Temperate propolis and tropical propolis
F. None of the Above

Topic 11 Bee Control Section Post Exam

General Bee Control and Treatments

1. In some cases, attempting to destroy a nest becomes a greater health risk than simply tolerating and avoiding it. But nests, especially those of social species, should be destroyed if they are close enough to humans to pose a _____.

A. Nest(s)
B. Thousand bees
C. Hazard
D. First males
E. Stinging threat
F. None of the Above

2. The nests of honey bees, bumble bees, yellowjackets and hornets should always be approached with caution, preferably at night when most of the workers are present but reluctant to fly. Try not to carry a light, as wasps and bees may fly toward it. Instead, set the light aside or cover it with red cellophane (insects cannot see red light). If there is direct access to the nest, a fast-acting dust or wettable powder formulation can be applied. If possible, inject the material into the _____.

A. Nest(s)
B. Thousand bees
C. Net
D. Hole
E. Crack
F. None of the Above

3. If you must approach these nests during daytime, _____ can be used to keep the bees/wasps at bay, while you treat the nest as above. Heavy clothing or a “bee suit” can be worn for added protection.

A. Odor
B. Bear
C. Dusting device
D. Heat spray
E. An application
F. None of the Above

Mechanical Control Remove bees from the house with a vacuum cleaner

4. Unless you have a thousand bees swarming your face, the _____is a great way to get rid of bee pests that are in the house. Simply use the hose attachment and suck them into oblivion.

A. Smoke
B. Vacuum cleaner
C. Dusting device
D. Heat spray
E. An application
F. None of the Above

Specific Bee Treatments

5. Certain _____are harmful to bees. That’s why we require instructions for protecting bees on the labels of pesticides that are known to be particularly harmful to bees. This is one of many reasons why everyone must read and follow pesticide label instructions.

A. Smoke
B. Vacuum cleaner
C. Dusting device
D. Heat spray
E. Pesticides
F. None of the Above

Application of Pest Products

6. When a _____is completely filled to its capacity, or when dust is packed down inside the duster, dust does not come out in proper form.

A. Hand bellows duster
B. Vacuum cleaner
C. Dusting device
D. Back pack
E. Bee kill machine
F. None of the Above

Aldicarb

7. Aldicarb is a carbamate insecticide which is the active substance in the pesticide _____. It is effective against thrips, aphids, spider mites, lygus, fleahoppers, and leafminers, but is primarily used as a nematicide.

A. Four stereoisomers
B. An enzyme
C. Insecticidal concentrations
D. An insecticide and as molluscicide
E. Nicotine-based, systemic insecticide
F. None of the Above

Carbofuran

8. It is_____, which means that the plant absorbs it through the roots, and from here the plant distributes it throughout its organs where insecticidal concentrations are attained. Carbofuran also has contact activity against pests.

A. Four stereoisomers
B. An enzyme
C. Insecticidal concentrations
D. An insecticide and as molluscicide
E. A systemic insecticide
F. None of the Above

Diazinon

9. Diazinon kills insects by_____, an enzyme necessary for proper nervous system function. Diazinon has a low persistence in soil. The half-life is 2 to 6 weeks. The symptoms associated with diazinon poisoning in humans include weakness, headaches, tightness in the chest, blurred vision, nonreactive pinpoint pupils, excessive salivation, sweating, nausea, vomiting, diarrhea, abdominal cramps, and slurred speech.

A. Four stereoisomers
B. Inhibiting acetylcholinesterase
C. Insecticidal concentrations
D. An insecticide and as molluscicide
E. Nicotine-based, systemic insecticide
F. None of the Above

Imidacloprid

10. Imidacloprid is a nicotine-based, systemic insecticide, which acts as a neurotoxin and belongs to a class of chemicals called the_____.

A. Four stereoisomers
B. Neonicotinoids
C. Insecticidal concentrations
D. Molluscicide
E. Nicotine-based, systemic insecticide
F. None of the Above

Malathion

11. Malathion is a pesticide that is widely used in agriculture, residential landscaping, public recreation areas, and in public health pest control programs such as mosquito eradication. In the US, it is the most commonly used_____.

A. Four stereoisomers
B. Organophosphate insecticide
C. Insecticidal concentrations
D. Bird repellent
E. Nicotine-based, systemic insecticide
F. None of the Above

Methiocarb

12. Methiocarb is a chemical mainly used as a bird repellent, as an insecticide and as molluscicide. It is toxic to humans, not listed as_____, is toxic to reproductive organs, and a potent neurotoxin.

A. Four stereoisomers
B. An enzyme
C. Insecticidal concentrations
D. A carcinogen
E. Nicotine-based, systemic insecticide
F. None of the Above

Permethrin

General Information

13. Permethrin is_____. It is available in dusts, emulsifiable concentrates, smokes, ULV concentrates, and wettable-powder formulations.

A. Four stereoisomers
B. A broad-spectrum pyrethroid insecticide
C. Insecticidal concentrations
D. An insecticide
E. Systemic insecticide
F. None of the Above

Resmethrin

14. Resmethrin is _____with many uses, including control of the adult mosquito population. The resmethrin molecule has four stereoisomers determined by cis-trans orientation around a carbon triangle and chirality.

A. Four stereoisomer
B. An enzyme
C. Insecticidal spray
D. An insecticide
E. A pyrethroid insecticide
F. None of the Above

Colony cycle

15. Early in the colony cycle, the queen bumble bee compensates for potential reproductive competition from workers by suppressing _____by way of physical aggression and pheromonal signals. Thus, the queen will usually be the mother of all of the first males laid.

A. Their egg-laying
B. Pollen collecting
C. Honey production
D. The first males
E. Stinging threat
F. None of the Above

Topic 12 Bee-Related Inspections Section Post Exam

1. Bees, hives, frames, etc., must be handled by the beekeeper, an accompanying state apiarist, or an inspector with knowledge of bee colonies and/or beekeeping training. _____should be properly dressed with bee protective clothing/attire to minimize the risk of bee stings regardless of whether they personally handle a hive.

A. Beekeepers
B. Workers
C. Employees
D. Honey production handlers
E. Inspectors
F. None of the Above

2. To determine how a bee hive or colony was exposed to _____, the inspector must rely on additional observations or sample collection from the hive, the site where the bees died, areas adjacent to the bee hive, etc.

A. Chance of vandalism
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

3. _____should be collected from fresh honey in the top of the hive and pollen samples should be collected from uncapped (i.e., recently collected) pollen chamber near the brood chamber. Brood chamber, wax and other areas of the hive may contain residues collected over time.

A. Honey samples
B. Brood chamber
C. Pollen
D. Honey production
E. Brood wax
F. None of the Above

4. When sampling pollen and/or honey from comb, care should be taken not to include wax since wax can contain a different spectrum of pesticides than what may actually be present in pollen or honey. _____is generally dark brown to black. Honey wax is pale and light colored.

A. Unique batches
B. Brood chamber
C. Pollen
D. Honey production
E. Brood wax
F. None of the Above

5. Keep in mind that when sampling pollen from the comb, bees do not typically store pollen in_____. Pollen collected from a number of floral sources over time may be stored in the same cell of the comb.

A. Unique batches
B. Brood chamber
C. Pollen
D. Honey production
E. Brood wax
F. None of the Above

6. Prior to conducting an inspection related to bee deaths, the inspector should contact the laboratory that will analyze_____.

A. Any physical samples collected
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

7. _____may be located on wooden pallets to facilitate transport or to ready colonies for deployment to pollination locations; these colonies also tend to be of relatively uniform dimensions in order to facilitate stacking during transport. For colonies involved in honey production, the number of "supers" on the colony is based on the ability of that colony to produce honey.

A. Migratory colonies
B. Brood chamber
C. Pollen
D. Honey production
E. Nutritional and energy needs
F. None of the Above

8. Bee death may also be caused by exposure to pesticides. _____may occur through drift of pesticides from aerial or ground applications immediately adjacent to where colonies are located and/or to areas where bees may be foraging for food and/or water.

A. Chance of vandalism
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. Colony exposure
F. None of the Above

9. While bees will forage to meet the nutritional and energy needs of the colony and typically select forage that represents a preferred source of both pollen and nectar, they may also forage on less preferred sources of _____ based on availability.

A. Beekeeper
B. Brood chamber
C. Pollen
D. Honey production
E. Nutrition and water
F. None of the Above

10. Apiary locations are typically well hidden to limit the _____.

A. Chance of vandalism
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

Topic 13 Wasp Identification

10 final exam questions. (s) Means answer can be singular or plural.

Yellowjackets

1. The Blue Mud Wasp is another solitary wasp less common but present in our area. This wasp seems incapable of building her own mud nest, but is able to repair and use abandoned nests. The _____ is at the top of her menu.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Black Widow spider
E. D. (formerly known as V.) maculata
F. None of the Above

2. The social wasps can be fractured into 2 groups, the Yellowjackets / Hornets and_____.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. D. (formerly known as V.) maculata
F. None of the Above

Yellowjackets

3. These wasps tend to be medium sized and black with jagged bands of bright yellow—or white in the case of the aerial-nesting_____—on the abdomen and have a very short, narrow "waist," the area where the thorax attaches to the abdomen.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Digger bees and Andrenids
E. D. (formerly known as V.) maculata
F. None of the Above

4. V. vulgaris ranges across Canada and the northeastern United States. Common in higher elevations, it nests in shady evergreen forests around parks and camps in the western mountains and the eastern Appalachians. This species also is _____.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. D. (formerly known as V.) maculata
F. None of the Above

Eastern Yellowjacket (Vespula maculifrons)

5. The Eastern yellowjacket sometimes nests in building wall voids. Most yellowjackets have very slightly barbed stingers but the sting will not set in the victim's tissue like the barbed stinger of the honey bee. The stinger of _____, however, often sticks and when the insect is slapped off, the stinger may remain.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Andrenids
E. D. (formerly known as V.) maculata
F. None of the Above

German yellowjacket (Vespula germanica)

6. _____may be active in protected voids into November and December when outside temperatures are not severe.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. Colonies of this yellowjacket
F. None of the Above

Paper Wasp

7. Common areas their nests can be found include on walls or under eaves of homes and other buildings. Nest construction begins in the Spring and construction and maintenance continues as long as the colony continues to grow. _____gather fibers form old decaying wood or dead, dry plants, chew them up and mix the debris with water to make their grey paper nest. Populations in these nests rarely ever exceed 200.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Wasps
E. D. (formerly known as V.) maculata
F. None of the Above

Yellowjacket Management

Inspection

8. Entrance holes sometimes have bare earth around them. Entrance holes in structures are usually marked by_____. Nests high in trees should not be problems. Be sure to wear a bee suit or tape trouser cuffs tight to shoes.

A. Fast flying workers entering and leaving
B. Bare earth
C. Reddish dust
D. Rapidly lower nest temperature
E. Paralyzed tarantula
F. None of the Above

Pesticide Application

9. When possible, treat ground and aerial nests after dark [Workers are in the nest at that time]. More often than not, because of_____, treatment will be scheduled for the daytime.

A. The dark
B. Bare earth
C. Toxic dust
D. Rapidly lower nest temperature
E. Traditional work schedules
F. None of the Above

Umbrella Wasps (Polistes spp. and Mischocyttarus flavitarsis)

10. Umbrella wasps are also commonly referred to as paper wasps. These wasps have been named _____because their nests are the shape of an inverted umbrella. They usually have small nests and are usually inhabited by about 250 wasps.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. Umbrella wasps
F. None of the Above

Topic 14 Common Crop Insects and Pesticide Controls

18 final exam questions. (s) Means answer can be singular or plural.

Cotton Aphid

1. Cotton aphid is_____, and adults may be winged or wingless.

A. Most destructive
B. Controllable
C. Impressive in reproductive capacity
D. Highly variable in body size and color
E. Much more restrictive in their diet choice
F. None of the Above

2. Nymphs and adults of wingless cotton aphids vary in color from yellow to green to nearly black. The darker forms tend to be _____.

A. Most destructive
B. A problem in cool areas
C. Darker
D. Long-lasting protection
E. Substantially larger
F. None of the Above

Green Peach Aphid

3. Green peach aphid feeds on hundreds of host plants in over 40 plant families. However, it is only the viviparous (giving birth to living young) summer stages that _____; the oviparous (egg producing) winter stages are much more restrictive in their diet choice.

A. Most destructive
B. Controllable
C. Impressive in reproductive capacity
D. Highly variable in body size and color
E. Feed so widely
F. None of the Above

Insecticides

4. _____are especially popular at planting time, most of which provide long-lasting protection against aphid population buildup during the critical and susceptible early stages of plant and some of which provide protection for 3 months.

A. Insect growth regulator(s)
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Systemic insecticide applications
F. None of the Above

Green Peach Aphid Control

5. Aphids are also_____. In broccoli and cauliflower, the presence of aphids in the heads makes the crop unmarketable.

A. An important pest of cole crops
B. Beneficial
C. Impressive reproducers
D. May be winged or wingless
E. Are much more restrictive in their diet
F. None of the Above

6. Early damage to the growing point of a cabbage plant distorts the head. _____ can also be a problem on older cabbage plants.

A. Striped and Spotted Cucumber Beetle
B. Spotted Cucumber Beetle
C. Thrips
D. Tomato Pinworm
E. Aphids
F. None of the Above

7. _____ appear first on borders of the field and will generally be found there if they are present in the field at all. Scouting should take place at least twice a week and should cover all quadrants of the field.

A. Striped and Spotted Cucumber Beetle
B. Spotted Cucumber Beetle
C. Thrips
D. Tomato Pinworm
E. Aphids
F. None of the Above

Flamer

8. The flamer was used repeatedly on the field edges during the time the overwintering beetles migrate from the edge of the field. One or two passes in the field during that time also controlled overwintering_____. In addition to killing larvae, the flamer reduced egg hatch by 35%.

A. Flamer
B. Beetles
C. Cowpea Curculio
D. European Corn Borer
E. Vetchworm
F. None of the Above

Corn Earworm

9. Corn earworm has a wide host range; hence, it is also known as "tomato fruitworm," "sorghum headworm," "vetchworm," and "_____." In addition to corn and tomato, perhaps its most favored vegetable hosts, corn earworm also attacks artichoke, asparagus, cabbage, cantaloupe, collard, cowpea, cucumber, eggplant, lettuce, lima bean, melon, okra, pea, pepper, potato, pumpkin, snap bean, spinach, squash, sweet potato, and watermelon.

A. Flamer
B. Corn Earworm
C. Cowpea Curculio
D. European Corn Borer
E. Vetchworm
F. None of the Above

Cowpea Curculio

10. Cowpea curculio adults pass the winter in crop refuse or weeds, particularly brown sedge, around previously infested plants. The _____, or weevils, leave their overwintering sites from April through July.

A. Flamer
B. Corn Earworm
C. Cowpea Curculio
D. European Corn Borer
E. Vetchworm
F. None of the Above

11. _____ puncture developing pods with their snouts as they feed. Females lay a single egg in some of the feeding wounds. About 4 days later, brown-headed grubs emerge and infest the seeds of beans and peas.

A. Flamers
B. Corn Earworms
C. Cowpea Curculios
D. European Corn Borers
E. Weevils
F. None of the Above

12. The only feasible approach to control of _____ is a preventive spray program.

A. Flamers
B. Corn Earworms
C. Cowpea Curculios
D. European Corn Borers
E. Weevils
F. None of the Above

13. _____will be a serious pest of peas from first bloom until harvest. The current recommended spray schedule begins with a spray at first bloom and repeat treatments made on a five-day schedule until five applications have been made.

A. Flamer
B. Corn Earworm
C. Curculios
D. European Corn Borer
E. Imported Cabbageworm
F. None of the Above

Vegetable Leafminers

14. The adults are principally yellow and black in color. The shiny black mesonotum of L. sativae is used to distinguish this fly from the closely related_____, Liriomyza trifolii which has a grayish black mesonotum.

A. Fall Armyworm
B. American leafminer
C. American serpentine leafminer
D. Mexican Bean Beetle
E. Tomato caterpillar pests
F. None of the Above

Tomato Fruitworm

15. _____ for the tomato fruitworm include Bt and Trichogramma wasps. Bt must be reapplied after 5 to 7 days.

A. Rotation
B. Elytron
C. Biological controls
D. Skeletonized with a lace-like appearance
E. Deposited brownish-red eggs in clusters
F. None of the Above

16. Trichogramma is a _____which lays its eggs in the eggs of a number of insects, including fruitworms.

A. Parasitic wasp
B. Flea Beetles
C. Vegetable Leafminers
D. Mexican Bean Beetle
E. Tomato caterpillar pests
F. None of the Above

Mexican Bean Beetle

17. Mexican bean beetle adults and _____feed on the undersides of leaves of several plants, including garden beans, cowpeas and soybeans, leaving the leaves skeletonized with a lace-like appearance.

A. Trichogramma
B. Flea Beetles
C. Vegetable Leafminers
D. Larvae
E. Tomato caterpillar pests
F. None of the Above

Pepper Maggot

18. Adult flies are attracted to rotting peppers, so removal of rotting fruit from fields reduces the attractiveness of fields to egg laying flies. Destroy infested fruit and cull piles as they serve as reservoirs for future infestations. Another cultural control is _____.

A. Rotation
B. Elytron
C. Biological controls
D. IPMs
E. IGRs
F. None of the Above

Topic 15 Cotton Insect and Related Pest Identification

4 final exam questions. (s) Means answer can be singular or plural.

Boll Weevil

1. The boll weevil is considered the key pest in cotton production because the insecticides that cotton growers traditionally use early in the season to control weevils also eliminates many _____.

A. Shield bug(s)
B. Soybean looper(s)
C. Larvae(s)
D. Two-spotted spider mite(s)
E. Aphid(s)
F. None of the Above

Beet Armyworm

2. Larvae feed gregariously for several days after hatching. Initially _____ feed from the underside of the leaf but leave the upper clear epidermis of the leaf intact, which results in windowpane-like damaged areas that are often referred to as "hits".

A. Shield bug(s)
B. Soybean looper(s)
C. Larvae(s)
D. Two-spotted spider mite(s)
E. Aphid(s)
F. None of the Above

Plant Bugs

3. The large and diverse insect family Miridae contains the plant bugs, leaf bugs, and grass bugs, and may also be known as_____.

A. Shield bug(s)
B. Soybean looper(s)
C. Larvae(s)
D. Capsid bugs
E. Aphid(s)
F. None of the Above

Loopers

4. Two species of loopers are commonly found in cotton, the _____and the soybean looper.

A. Shield bug(s)
B. Soybean looper(s)
C. Larvae(s)
D. Cabbage looper
E. Aphid(s)
F. None of the Above

Topic 16 - 1 node Ant Identification and Control Section Post Exam

6 final exam questions. (s) Means answer can be singular or plural

Ant Control

1. _____ can again be a useful tool in eradicating inside-the-home ant nests, although baits may not work as well with carpenter ants as with the other species mentioned.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Pressure or combination pressure/diffusion treatment
F. None of the Above

Carpenter Ants

2. Carpenter ants are most active in the evening hours, foraging for all kinds of food, both inside the house and outside. By following the ants, you may be able to tell where the nest is. Because carpenter ants keep the tunneled galleries very clean and push the _____out small holes in the wood, a small, fresh pile of sawdust under the nest timber is the usual sign of an active carpenter ant nest.

A. Red Imported Fire Ant(s)
B. Argentine ant(s)
C. Carpenter ant(s)
D. Red Harvester Ant(s)
E. Ghost Ant(s)
F. None of the Above

Ghost Ant
Foraging and feeding

3. Workers follow scent trails along the edges of structures for protection. They can often be spotted trailing under the edge of carpets and up the sides of the building, searching for _____.

A. Scent trails
B. Inside-the-home ant nests
C. Mounds of soft soil
D. Nest(s)
E. Brood chamber(s)
F. None of the Above

Harvester Ants

4. Red Harvester Ants can be aggressive and have a painful sting that spreads through the lymph nodes, sometimes causing reactions, especially in animals allergic to their venom. They can also bite ferociously.

Over the years, their numbers have been declining, and this has often been attributed to competition for food with the invasive Red Imported Fire Ant and the _____.

A. Red Imported Fire Ant(s)
B. Argentine ant(s)
C. Carpenter ant(s)
D. Red Harvester Ant(s)
E. Ghost Ant(s)
F. None of the Above

Locate and Treat Colonies

5. Drench colonies living in the soil or under items on the exterior with_____. With mulch, be sure to rake it back to get good penetration where colonies may be thriving. Follow up with a broadcast application of granule such as Talstar G.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Demand, Suspend, or Tempo
F. None of the Above

6. If you know with some certainty where the colony is living inside, then you can treat them directly by drilling a small hole into the wall void at the base (directly above the baseboard) and injecting a dust, such as _____.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Pressure or combination pressure/diffusion treatment
F. None of the Above

Topic 17 - 2 node Ant Identification and Control Section Post Exam

6 final exam questions. (s) Means answer can be singular or plural.

Black Ant

1. Simply picking up rocks and debris around the house will also help. If the ants are nesting in the house, the wall voids will need to be dusted with _____ in areas where ant baits are not to be used. Ant infestation are not easy to control and different strategies should be used depending on nest location and food preferences of the ants.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Demand, Suspend, or Tempo
F. None of the Above

Red Imported Fire Ants

2. Red imported fire ants (RIFA) are medium sized ants that build _____ rarely larger than 18" in diameter. The ants emerge out aggressively when they are disturbed and sting. Their sting usually leaves a white pustule the next day.

A. Scent trails
B. Inside-the-home ant nests
C. Mounds of soft soil
D. Nest(s)
E. Brood chamber(s)
F. None of the Above

Specific Actions

3. If the nest is exposed (e.g. due to remodeling or reroofing) you can use_____, such as bifenthrin, cyfluthrin, deltamethrin, or permethrin. Spray the insecticide directly into as much of the nest as possible. The more of the colony that is exposed, the better your chance of destroying it. It is necessary to anticipate an ant colony and have a product ready at the start of construction. Once the nest is exposed, that portion of the colony will try to relocate to protect themselves.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. A liquid or aerosol ready-to-use insecticide
E. Pressure or combination pressure/diffusion treatment
F. None of the Above

Bait Treatments

4. In a process known as trophallaxis, one ant regurgitates its stomach contents to another ant. This food sharing behavior enables the bait to be spread throughout the colony before the _____takes effect.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Toxicant
F. None of the Above

Borates

5. Unlike most other wood preservatives and organic insecticides that penetrate best in dry wood, borates are_____—they penetrate unseasoned wood by diffusion, a natural process. Wood moisture content and method and length of storage are the primary factors affecting penetration by diffusion. Borate information is also found on page 416.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Diffusible chemicals
F. None of the Above

6. Application methods include momentary immersion by_____; pressure or combination pressure/diffusion treatment; treatment of composite boards and laminated products by treatment of the wood finish; hot and cold dip treatments and long soaking periods; spray or brush-on treatments with borate slurries or pastes; and placement of fused borate rods in holes drilled in wood already in use. Borate information is also found on page 416.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Bulk dipping
F. None of the Above

Agricultural Pesticide Control CEU Training Assignment #3
Last Names N to S Only

You will have 90 days from the start of this course to have successfully pass this assignment with a score of 70 %. You may email the answers to TLC, info@tlch2o.com or fax the answers to TLC, (928) 272-0747. This assignment is available to you in a Word Format on TLC's Website. You can find online assistance for this course in Adobe Acrobat's Search function. Once you have paid the course fee, you will be provided complete course support from Student Services (928) 468-0665.

You will need to pick one of the following three assignments to complete. This selection process is based upon your last name. If your last name begins with an A to G, you will pick assignment number 1, if your last name begins with the letter H to M, you are to complete assignment number 2 and if your last name begins with the letter N-S, you will pick assignment number 3 and if your last name starts with T to Z you need to complete assignment #4. If you are a repeat student, please take the alterative version # 5 assignment.

Complete all topics before submitting the answers key.

Topic 1 Pesticide Fundamentals Introduction

12 final exam questions. (s) Means answer can be singular or plural.

Organophosphates and Carbamates Pesticides

1. Organophosphates are phosphoric acid esters or _____. When developed in the 1930s and 1940s, their original compounds were highly toxic to mammals.

A. Insect growth regulator
B. Temephos
C. Chlorpyrifos
D. Hormonal IGRs
E. Thiophosphoric acid esters
F. None of the Above

2. Malathion, dibrom, chlorpyrifos, temephos, diazinon and terbufos are _____.

A. Insect growth regulator(s)
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Phosphoric acid esters
F. None of the Above

Pyrethroids

3. To mimic the insecticidal activity of the natural compound pyrethrum another class of pesticides, pyrethroid pesticides, has been developed. These are_____, which is a sodium channel modulators, and are much less acutely toxic than organophosphates and carbamates.

A. Persistent
B. Environmentally safe
C. Non-persistent
D. Natural compound pyrethrum
E. Inhalation and dermal absorption hazards
F. None of the Above

4. _____ are formulated as emusifiable concentrates (EC), wettable powders (WP), granulars (G), and aerosols.

A. Insect growth regulator(s)
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Phosphoric acid esters
F. None of the Above

5. Certain _____exhibit striking neurotoxicity in laboratory animals when administered by intravenous injection, and some are toxic by the oral route.

A. Insect growth regulator(s)
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Phosphoric acid esters
F. None of the Above

6. Systemic toxicity by _____ are low, however—there have been very few systemic poisonings of humans by pyrethroids.

A. Atmospheric deposition
B. Applications
C. Higher organisms
D. Insecticidal activity of the natural compound pyrethrum
E. Inhalation and dermal absorption
F. None of the Above

Borates

7. Wood moisture content and method and length of storage are the primary factors affecting penetration by _____. Properly done, diffusion treatments permit deep penetration of large timbers and refractory (difficult-to-treat) wood species that cannot be treated well by pressure.

A. Inert ingredients
B. Pesticide levels
C. Water characteristics
D. Wood moisture content
E. Chemistry
F. None of the Above

Properties of Pesticides

8. The properties of pesticides determine their_____. The important properties are persistence, volatility, and solubility in water.

A. Atmospheric deposition
B. Environment
C. Insecticidal activity
D. Fate and behavior in the environment
E. Inhalation and dermal absorption
F. None of the Above

Properties of the Environment

9. Water characteristics also vary and influence pesticide behavior. Some of the characteristics are acidity, depth, temperature, clarity, flow rate,_____.

A. And inert ingredients
B. And pesticide levels
C. And water characteristics
D. And wood moisture content
E. Presence of biological organisms and general chemistry
F. None of the Above

10. Living organisms accumulate certain pesticides. Through the process of bioaccumulation, pesticides accumulate in lower organisms and are passed to higher organisms in the food chain when _____.

A. Deposition occurs
B. Absorbed
C. Inert ingredients are high
D. Insecticidal activity is absorbed
E. Inhaled and dermally absorbed
F. None of the Above

11. _____will accumulate the pesticides at higher levels than their food source. Pesticide levels in fish, for example, can be tens to hundreds of thousands of times greater than ambient water levels in which they live.

A. Inert ingredients
B. Pesticide levels
C. Water characteristics
D. The higher organism
E. Chemistry
F. None of the Above

12. Humans are at the top of the food chain. They bioaccumulate the pesticides accumulated by the lower animals and plants that they eat. It is not only fish but also domestic farm animals and plant food which can accumulate_____. Care must be used in the use of pesticides in agricultural as well as home and garden scenarios.

A. Inert ingredients
B. Insecticide levels
C. Spray characteristics
D. Pesticides
E. Application pesticide chemistry
F. None of the Above

Topic 2 Agricultural Pesticide Application Information

15 final exam questions. (s) Means answer can be singular or plural.

Changes to EPA's Farm Worker Protection Standard

1. The regulation seeks to protect and reduce the risks of injury or illness resulting from agricultural workers' (those who perform_____ , such as harvesting, thinning, pruning) and pesticide handlers' (those who mix, load and apply pesticides) use and contact with pesticides on farms, forests, nurseries and greenhouses. The regulation does not cover persons working with livestock.

A. Application
B. Work
C. Apply
D. Hand-labor tasks in pesticide-treated crops
E. Tasks related to growing
F. None of the Above

Employers covered by the WPS must:

2. Reduce overall exposure to pesticides by prohibiting handlers from exposing workers during pesticide application, excluding workers from areas being treated and areas under a restricted entry interval, and_____. Some activities are allowed during restricted entry intervals if workers are properly trained and protected.

A. Work Activities
B. Pesticide application
C. Pesticide(s)
D. Notifying workers about treated areas
E. Potential hazards from toxicity and exposure
F. None of the Above

3. Mitigate exposures by requiring decontamination supplies be present and emergency assistance be available. Inform workers about pesticide hazards by _____(workers and handlers), safety posters, access to labeling information, and access to specific information (listing of treated areas on the establishment).

A. Requiring safety training
B. Emergency assistance
C. Information exchange(s)
D. Appropriate measure(s)
E. Safe operation
F. None of the Above

What Will These Changes Achieve?

4. There is a clear need for _____ for farmworkers. Each year, between 1,800 and 3,000 occupational incidents involving pesticide exposure are reported from the farms, forests, nurseries and greenhouses covered by the Worker Protection Standard. There is widespread underreporting.

A. Protective clothing
B. Retaliatory action(s)
C. WPS
D. Mitigate exposure(s)
E. Better protection
F. None of the Above

5. Fewer incidents mean a healthier workforce and avoiding lost wages, medical bills, and absences from work and school. In addition, EPA is concerned about _____that may contribute to chronic illness.

A. WPS provisions
B. States
C. Annual mandatory training
D. Personal protective equipment
E. Low level, repeated exposure to pesticides
F. None of the Above

What Types of Activities Are Covered?

6. The regulation seeks to protect and reduce the risks of injury or illness resulting from agricultural workers' (those who perform hand-labor tasks in pesticide-treated crops, such as harvesting, thinning, pruning) and pesticide handlers' (those who mix, load and apply pesticides) use and contact with pesticides on farms, forests, nurseries and greenhouses. The regulation does not cover _____working with livestock.

A. Worker(s)
B. Handler(s)
C. Persons
D. Hired workers and handlers
E. Hand labor operations
F. None of the Above

Family Exemption

7. There is an “immediate family” exemption to the WPS that exempts family members from MOST of the WPS protections. However, family members must still use label required _____ and still must obey the REIs (Restricted Entry Intervals) and the other label requirements.

A. AEZ D. PPE
B. REI E. OSHA
C. WPS F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

Training Changes

8. This is the area with the most changes. Under the revision growers subject to the WPS must now train their employees every year and they must be trained on Day 1 before they do any work in the crop areas if it has been less than _____ days since the last restricted entry interval expired. Make sure the employees sign off on their training and keep those on file. If the employee requests a copy of the sign off employers are now responsible to give them one copy.

A. 30 D. 7
B. 45 E. 360
C. 60 F. None of the Above

Central Location

9. The big change here is the need to keep SDS sheets (Safety Data Sheets). Many of you are unfamiliar with SDS sheets but they are the old MSDS sheets in a standardized format. You will need to “display” them at the central location for _____ days following their use. Keeping them in a loose leaf notebook at the central location is acceptable.

A. 30 D. 7
B. 45 E. 360
C. 60 F. None of the Above

Protection Against Retaliatory Acts

10. Requirements of this subpart designed to reduce the risks of illness or injury resulting from workers' occupational exposure to pesticides, including application and entry restrictions, the design of the warning sign, posting of warning signs, oral warnings, the availability of specific information about applications, and the_____.

A. WPS provisions D. Personal protective equipment
B. Protection against retaliatory acts E. Safe level
C. Annual mandatory training F. None of the Above

Mitigating Exposures

11. _____ will be accomplished by requiring decontamination supplies and emergency assistance.

A. Emergency assistance D. Requirements in the standard
B. Labeling of the pesticide E. Mitigating exposure(s)
C. PPE F. None of the Above

12. Workers will be informed about _____through required safety training (workers and handlers), safety posters, access to labeling information, and access to specific information (listing of treated areas on the establishment).

A. Emergency assistance D. Requirements in the standard
B. Labeling of the pesticide E. Pesticide hazards
C. PPE F. None of the Above

Worker Protection Standard for Agricultural Pesticides

13. Provisions of the WPS apply to: Owners or managers of farms, forests, nurseries, or greenhouses where pesticides are _____agricultural plants. Those who hire or contract for services of agricultural workers to do tasks related to the production of agricultural plants on a farm, forest, nursery, or greenhouse.

A. Used in the production of
B. Work
C. Apply
D. Mix, load, or apply agricultural pesticide(s)
E. Tasks related to growing
F. None of the Above

What Does the Revised WPS Require?

14. The requirements in the _____ are intended to inform workers and handlers about pesticide safety, provide protections from potential exposure to pesticides, and mitigate exposures that do occur.

A. Protective clothing
B. Retaliatory action(s)
C. WPS
D. Mitigate exposure(s)
E. Agricultural establishment
F. None of the Above

Understanding the Worker Protection Standard?

15. The Worker Protection Standard (WPS) is a regulation issued by the U.S. Environmental Protection Agency. It covers pesticides that are used in the production of agricultural plants on farms, forests, nurseries, and greenhouses. The _____ requires you to take steps to reduce the risk of pesticide-related illness and injury if you (1) use such pesticides, or (2) employ workers or pesticide handlers who are exposed to such pesticides.

A. AEZ
B. REI
C. WPS
D. EPA
E. OSHA
F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

Complete all topics before submitting the answers key.

Topic 3 Common Pesticide Applications and Methods

17 final exam questions. (s) Means answer can be singular or plural.

Hand Operated Sprayers

1. Obtaining uniform coverage of an area is difficult with a hand operated sprayer. The operator must move the nozzle from side to side with _____.

A. Field crops
B. Action thresholds
C. Agriculture industry
D. Any action necessary
E. Compatibility agents
F. None of the Above

2. There are many other types of hand operated sprayers that are not widely used throughout the agriculture industry. Some may be used extensively for the production of_____.

A. Field crops
B. Action thresholds
C. Specific commodities
D. Any action necessary
E. Compatibility agents
F. None of the Above

Boom Sprayers

3. Most sprayers distribute pesticides using a boom with spray nozzles spaced at regular intervals. The most common example would be wide horizontal booms used on _____to spray field crops.

A. Motorized sprayers
B. Spray nozzles
C. Wide horizontal booms
D. Field sprayers
E. Airblast sprayers
F. None of the Above

Airblast sprayers

4. In field crops good coverage is relatively easy to achieve where the _____is small and close to the nozzles. In tree fruits, especially with large trees, good coverage with conventional sprayers is more difficult to achieve.

A. Field crops
B. Action thresholds
C. Agriculture industry
D. Target foliage
E. Compatibility agents
F. None of the Above

5. Examples of _____ include Arborchem and kerosene.

A. Insect growth regulator
B. Penetrating Agents
C. Action thresholds
D. Hormonal IGRs
E. Restricted pesticides
F. None of the Above

Insect Growth Regulators

Reduced Risk

6. Many IGRs are labeled "reduced risk" by the Environmental Protection Agency, meaning that they target _____while causing less detrimental effects to beneficial insects.

A. Insect growth regulator
B. Juvenile harmful insect populations
C. Action thresholds
D. Hormonal IGRs
E. Restricted pesticides
F. None of the Above

Hormonal IGRs

7. IGRs can also inhibit the other hormone, ecdysone, large peaks of which trigger the_____.

A. Insect growth regulator
B. Chitin
C. Insect to molt
D. Hormonal IGRs
E. IPM program(s)
F. None of the Above

Hexaflumuron

8. Hexaflumuron (hexaflumeron) is a(n) _____ that interferes with insects' chitin synthesis.

A. Pesticide chemical application
B. Pyrethroid
C. Insect growth regulator
D. Restricted pesticide
E. Organophosphate
F. None of the Above

Diflubenzuron

9. Diflubenzuron is an insecticide of the _____class. It is used in forest management and on field crops to selectively control insect pests.

A. Benzamide
B. Pyrethroid
C. Insect growth regulator
D. Restricted pesticide
E. Organophosphate
F. None of the Above

Pyriproxyfen

10. In Europe _____is known under the brand names Cyclio (Virbac) and Exil Flea Free TwinSpot (Emax).

A. Benzamide
B. Pyrethroid
C. Pyriproxyfen
D. Restricted pesticide
E. Organophosphate
F. None of the Above

Methoprene

11. Methoprene is a(n) _____ with activity against a variety of insect species including horn flies, mosquitoes, beetles, tobacco moths, sciarid flies, fleas (eggs and larvae), fire ants, pharaoh ants, midge flies and Indian meal moths.

A. Insect growth regulator
B. Chitin
C. Benzoyl-phenylurea termiticide
D. Hormonal IGRs
E. Benzamide
F. None of the Above

IPM Methods (Types of Pest Control)

12. IPM is not a single pest control method but, rather, a series of pest management evaluations, decisions and controls. In practicing IPM, growers who are aware of the potential for pest infestation follow _____approach.

A. Pesticide chemical application(s)
B. Pyrethroids
C. An insect growth regulator
D. Restricted pesticides
E. Organophosphates
F. None of the Above

Activity of Adjuvants

13. Adjuvants, or additive compounds, aid in the mixing, application or effectiveness of pesticides. One class of adjuvants, _____, allow(s) uniform mixing of compounds that would normally separate. Other types of adjuvants include spreaders, stickers, and synergists.

A. Restricted pesticides
B. Action thresholds
C. Agriculture industry
D. Pesticide chemical application(s)
E. Compatibility agents
F. None of the Above

Knowledge of Labeling Information

14. A _____must assure that handlers understand all of the labeling requirements related to safe use of pesticides before any handling activity takes place. The handler must also have access to the product labeling information during handling activities.

A. Handler(s)
B. Agricultural employer(s)
C. Handler employer
D. Early-entry workers
E. Worker(s)
F. None of the Above

What Information Must Be Displayed? These questions come from the Topic 4 Section

15. The following three types of information must be displayed at a central location before a pesticide is applied: Pesticide-specific application information, which must include: the location and description of the area to be treated, product name, EPA registration number, and_____, time and date the pesticide is scheduled to be applied, and restricted-entry interval for the pesticide.

A. WPS safety poster
B. Decontamination supplies
C. Restrictions
D. Pesticide-specific application information
E. Personal protective equipment (PPE)
F. None of the Above

16. The WPS requires that decontamination supplies be provided regardless of the _____. There is no exemption for employers with only a few employees.

A. WPS safety poster
B. Decontamination supplies
C. Restrictions
D. Pesticide-specific application information
E. Personal protective equipment (PPE)
F. None of the Above

17. Decontamination and emergency eyeflush water must, at all times when it is available to_____, be of a quality and temperature that will not cause illness or injury when it contacts the skin or eyes or if it is swallowed.

A. Handler(s)
B. Workers or handlers
C. Handler employer
D. Early-entry workers
E. Worker(s)
F. None of the Above

Topic 4 Decontamination and Emergency Requirements

14 final exam questions. (s) Means answer can be singular or plural.

Information for Agricultural Establishment Operators

1. Commercial pesticide applicators must inform the operator of a farm, forest, nursery, or greenhouse about the following information: The _____and description of the areas on the agricultural establishment that are to be treated with the pesticide(s)

A. Protective clothing
B. Retaliatory action(s)
C. Specific location
D. Mitigate exposure(s)
E. Agricultural establishment
F. None of the Above

2. Operators of commercial pesticide applicator establishments must have this information to inform and_____.

A. Work Activities
B. Pesticide application
C. Protect their employees
D. Pesticides and pesticide residues
E. Potential hazards from toxicity and exposure
F. None of the Above

3. Pesticide Safety, and Application and Hazard Information
That the employer must provide all the _____and hazard information.

A. Protective clothing
B. Retaliatory action(s)
C. Pesticide safety and application
D. Mitigate exposure(s)
E. Agricultural establishment
F. None of the Above

WPS Requires Providing Decontamination Sites

4. _____ must establish a decontamination site for all workers and handlers for washing off pesticides and pesticide residues. A decontamination site must be within a quarter (1/4) mile of the employees' work site.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Workers and handlers
E. Employe(es)
F. None of the Above

5. Employers must provide _____ where workers and handlers can wash pesticide residue from their hands and body.

A. A site
B. Decontamination site
C. Emergency eyewash
D. Permanent decontamination station(s)
E. All permanent mixing/loading sites
F. None of the Above

6. No-contact early-entry workers do not have to be provided the special protections required in Early Entry. However, they must be provided the following protections offered to other agricultural workers: information at a central location, pesticide safety training for workers, notification, restrictions during applications and during restricted-entry intervals, and emergency assistance. Decontamination supplies, however, need **not** be provided to _____ workers.

A. No hand labor
B. No Contact
C. Short-term
D. No entry
E. No-contact early-entry
F. None of the Above

7. The following are examples of situations where a worker would **not** be expected to contact _____ in a treated area after sprays, dusts, and vapors have settled out of the air:

A. Toxic substance
B. Effects of pesticide(s)
C. Small, repeated doses
D. Pesticide residues
E. A pesticide with a high acute toxicity
F. None of the Above

Decontamination Supply Requirements

8. Employers must make sure to provide handlers with decontamination supplies for _____and pesticide residues while they are performing handling tasks and to workers who are in a pesticide-treated area and are performing tasks that involve contact with anything that has been treated with pesticides, including soil, water, or plant surfaces.

A. Washing off pesticides
B. Work
C. Apply
D. Mix, load, or apply agricultural pesticide(s)
E. Tasks related to growing
F. None of the Above

Worker Decontamination Supplies

9. Supplies must be located within ¼ mile of the work area if a WPS-labeled pesticide has been used within _____ days, except in those cases where low-risk pesticides (those with REIs of four hours or less) are used.

A. 72
B. 4
C. 24
D. 30
E. 48
F. None of the Above

Handler Decontamination Supplies

10. Supplies must be provided at the mixing site and within ¼ mile of the application area. Supplies may be in the application area if protected from drift and spray residues. Supplies must include the following: Water—a minimum of _____gallons per handler or a potable source of tap water

A. 1
B. 5
C. 10
D. 2
E. 3
F. None of the Above

Specific Duties - Emergency Transportation

11. Promptly make emergency transportation available to take the worker to an emergency medical facility able to provide treatment: from the agricultural establishment, or _____ can "make transportation taking the employee to the emergency medical facility, or calling a such as an ambulance, or making sure the employee has a ride to the medical and facility with someone else.

A. Worker(s)
B. Handler(s)
C. Agricultural employer
D. Employers
E. Workers and handlers
F. None of the Above

Emergency Information

12. Provide to the worker or handler or to treating medical personnel, promptly upon emergency vehicle, request, any obtainable information on: product name, EPA registration number, and active ingredients for any product(s) to which the person may have been exposed, antidote, first aid, _____and other medical or emergency information from the product labeling, description of the way the pesticide was being used, circumstances of the worker's or handler's exposure to the pesticide.

A. Emergency assistance
B. Labeling of the pesticide
C. Statement of practical treatment
D. Requirements in the standard
E. Mitigating exposure(s)
F. None of the Above

Requirements for Handlers

13. The general applicability, exceptions and exemptions in the requirements for handlers and workers are the same. However, the requirements for _____have specific differences.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Workers and handlers
E. Employe(es)
F. None of the Above

Pesticide Safety Training

14. A handler employer must assure that each handler is properly trained in pesticide safety by a_____. The minimum pesticide training required, as well as the criteria for qualified trainers, is specified in the standard. Certified handlers and handlers who have been trained under 40 Code of Federal Regulations, Part 171 are exempt from this requirement.

A. Worker(s)
B. Handler(s)
C. Agricultural employer
D. Qualified trainer
E. Workers and handlers
F. None of the Above

Topic 5 Personal Protection Equipment, Safety, Health Section

15 final exam questions. (s) Means answer can be singular or plural.

Personal Protective Equipment (PPE)

1. One of the changes that happened as a direct result of implementing the WPS regulation is that protective clothing requirements are more clearly and completely listed on product labels. Each product label should list the _____ to be worn when the product is being used or when the potential for exposure to the product exists.

A. Coveralls
B. Rainsuit
C. Chemical-resistant clothing
D. Clean change of Clothes
E. Specific PPE
F. None of the Above

Application Exclusion Zone" or AEZ

2. The "Application Exclusion Zone" or AEZ is a new term used in the _____ rule and refers to the area surrounding the pesticide application equipment that must be free of all persons other than appropriately trained and equipped handlers during pesticide applications.

A. AEZ
B. REI
C. WPS
D. EPA
E. OSHA
F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

How is the AEZ measured and the size of the AEZ determined?

3. The AEZ is measured from the application equipment. The AEZ also moves with the application equipment like a halo around the_____.

A. No responsibilitie(s)
B. Applicable AEZ distance(s)
C. AEZ
D. Application equipment
E. Planting medium
F. None of the Above

4. _____ varies depending on the type of application and other factors, including droplet size, and height of nozzles above the planting medium.

A. No responsibilitie(s)
B. Applicable AEZ distance(s)
C. The size of an AEZ
D. Halo around the application equipment
E. Planting medium
F. None of the Above

5. The AEZ is _____ feet for aerial, air blast, fumigant, smoke, mist and fog applications, as well as spray applications using very fine or fine droplet sizes (a volume median droplet diameter (VMD) size of less than 294 microns).

A. 50
B. 10
C. 500
D. 25
E. 100
F. None of the Above

6. Does the new WPS requirements related to the AEZ apply to the agricultural employer or the handler making the application. There are several different requirements regarding the AEZ in the_____ . First, the WPS provision at 170.405(a)(1) establishes the applicable AEZ distances.

A. No responsibilitie(s)
B. Applicable AEZ distance(s)
C. Revised WPS
D. Halo around the application equipment
E. Planting medium
F. None of the Above

7. The requirement for the agricultural employer to keep persons out of the _____ only applies within the boundaries of the establishment because the agricultural employer cannot be expected to control persons off the establishment.

A. AEZ
B. REI
C. WPS
D. EPA
E. OSHA
F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

8. The "suspend application" provision does apply beyond the boundaries of the establishment because the handler (applicator) and handler employer DO have control over the pesticide application and are subject to a _____ requirement to apply the pesticide in a way that will not contact workers or other persons on or off the establishment.

A. AEZ
B. REI
C. WPS
D. EPA
E. OSHA
F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

9. What are the agricultural employer's responsibilities related to the pesticide applications and the new AEZ requirements, and when does this requirement go into effect? During any WPS-covered pesticide application, the agricultural employer must keep workers and all other persons (other than appropriately trained and equipped _____involved in the application) out of the treated area and the AEZ within the boundary of the agricultural establishment. This includes people occupying migrant labor camps or other housing or buildings that are located on the agricultural establishment.

A. Worker(s)
B. Handler(s)
C. Agricultural employer
D. Children
E. Workers and handlers
F. None of the Above

10. The agricultural employer may not allow a pesticide to be applied while _____ on the establishment is in the treated area or within the AEZ.

A. Worker(s)
B. Handler(s)
C. Any worker or other person
D. Workers and handlers
E. Employe(es)
F. None of the Above

11. Interpretive Policy on when a handler may resume a suspended application when a person is in the AEZ. If workers or other persons are within the AEZ, the handler must suspend the application whether the workers and other persons are located on or off the agricultural establishment. Before resuming the application when workers and other persons are in the AEZ but located off the establishment, the handler must take measures to ensure that such workers and other persons will not be contacted by the _____ either directly or through drift.

A. Requirement(s)
B. Emergency assistance
C. Information exchange(s)
D. Appropriate measure(s)
E. Pesticide application
F. None of the Above

Why Rinse Pesticide Containers?

12. Proper rinsing of pesticide containers is easy to do, saves money, and helps protect people and the environment. It also helps prevent potential problems with un-rinsed containers, rinsate storage, and pesticide wastes. Even during a busy season the few extra minutes it takes to properly _____is time well spent.

A. Triple punched
B. Properly rinsed
C. Pesticide container
D. Dispose of the rinsate
E. Rinse empty pesticide containers
F. None of the Above

13. Rinsate from the containers, when added directly into the sprayer tank, efficiently and economically uses all pesticide in the container. This eliminates the need to store and later dispose of the _____.

A. Triple punched
B. Properly rinsed
C. Pesticide containers
D. Rinsate
E. Rinsate storage, and pesticide wastes
F. None of the Above

Rinsing Helps Protect the Environment

14. Proper rinsing of pesticide containers reduces a potential source of contamination of soil, surface, and ground water. When contamination occurs, plants and animals may be harmed and water supplies affected. _____is always better than cleanup. Rinsing also helps in reducing the problem of handling pesticide wastes.

A. Triple punched
B. Properly rinsed
C. Pesticide containers
D. Prevention of environmental contamination
E. Rinsate storage, and pesticide wastes
F. None of the Above

15. Both federal and state laws require rinsing. Landfill operators and recyclers can only accept properly_____. Pesticide containers should only be offered to recycling projects designed for pesticide containers and not general plastic and metal recycling programs. Pesticide container recycling project personnel will inspect containers to determine if they have been properly rinsed.

A. Triple punched
B. Properly rinsed
C. Rinsed containers
D. Dispose of the rinsate
E. Rinsate storage, and pesticide wastes
F. None of the Above

Topic 6 WPS Required Training Section

15 final exam questions. (s) Means answer can be singular or plural.

The training must include, at a minimum, all of the following after January 2, 2017:

1. Where and in what form pesticides may be encountered during _____.

A. Work Activities
B. Toxicity and exposure
C. Pesticide(s)
D. Pesticide application
E. Pesticide applicator
F. None of the Above

2. _____resulting from toxicity and exposure, including acute and chronic effects, delayed effects, and sensitization.

A. Work Activities
B. Toxicity and exposure
C. Pesticide(s)
D. Pesticide application
E. Hazards of pesticides
F. None of the Above

3. The responsibility of agricultural employers to provide specific information to workers before directing them to perform early-entry activities. _____ must be 18 years old to perform early-entry activities.

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Hired workers and handlers
E. Hand labor operations
F. None of the Above

4. After working in pesticide treated areas, remove work boots or shoes before entering your home, and _____and wash or shower before physical contact with children or family members.

A. Work Activities
B. Pesticide applicator
C. Remove work clothes
D. Pesticide application
E. Potential hazards from toxicity and exposure
F. None of the Above

5. The rule prohibits agricultural employers from intimidating, threatening, coercing, or discriminating against any worker or handler for complying with or attempting to comply with the_____ , or because the worker or handler provided, caused to be provided or is about to provide information to the employer or the EPA or its agents regarding conduct that the employee reasonably believes violates this part, and/or made a complaint, testified, assisted, or participated in any manner in an investigation, proceeding, or hearing concerning compliance with this rule.

A. Requirement(s)
B. Emergency assistance
C. Requirements of this rule
D. Appropriate measure(s)
E. Safe operation
F. None of the Above

Decontamination Supplies

6. 1 gallon of water per worker and _____ gallons of water per handler at the beginning of each work period for routine and emergency decontamination,

A. 100
B. 2
C. 3
D. 5
E. 10
F. None of the Above

Labeling Information Section

7. A handler employer must assure that handlers understand all of the labeling requirements related to safe use of pesticides before any handling activity takes place. The handler must also have access to the _____ during handling activities.

A. Emergency assistance
B. Labeling of the pesticide
C. PPE
D. Product labeling information
E. Mitigating exposure(s)
F. None of the Above

Safe Operation of Equipment

8. A handler employer must assure that handlers are instructed in the safe operation of all equipment they will be using. It is the handler-employer's responsibility to assure that the equipment is working properly and to inform employees, when appropriate, that the equipment may be contaminated with pesticides and to explain the correct way to handle such_____.

A. Requirement(s)
B. Emergency assistance
C. Equipment
D. Appropriate measure(s)
E. Safe operation
F. None of the Above

Personal Protective Equipment

9. Any person handling a pesticide must use the clothing and PPE specified on the label for product use. Characteristics of protective clothing and PPE are specified in the_____, as are exceptions to PPE specified on product labeling. The handler employer must take appropriate measures to prevent heat-related illnesses.

A. Requirement(s)
B. Emergency assistance
C. Information exchange(s)
D. Appropriate measure(s)
E. Standard
F. None of the Above

Decontamination

10. A handler employer must provide a decontamination site (as specified in the standard) for washing off pesticides and pesticide residues during any_____ activity.

A. Work
B. Pesticide application
C. Handling
D. Pesticides and pesticide residues
E. Potential hazards from toxicity and exposure
F. None of the Above

Emergency Assistance

11. A handler employer must provide the _____ to handlers as discussed for workers.

A. Requirement(s)
B. Same emergency assistance
C. Information exchange(s)
D. Appropriate measure(s)
E. Safe operation
F. None of the Above

Label Requirements

12. When these requirements appear on pesticide labels, all end-users must meet them unless exempt. Exempt end-users should voluntarily obey the _____ because of the dangers of pesticide exposure.

A. Requirement(s)
B. Emergency assistance
C. Information exchange(s)
D. Appropriate measure(s)
E. Safe operation
F. None of the Above

Workers and Handlers Section

Who Must Protect Workers and Handlers?

13. Employers are responsible for making sure that workers and handlers receive the protections required by the pesticide labeling and the WPS. The term “employer” has a special meaning in the WPS — you are an employer even though you are _____ or use only members of your own family to do the work on your establishment.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Self-employed
E. Employe(es)
F. None of the Above

WPS Employer Definitions

Worker Employers:

14. If you are a worker employer, you are responsible for providing your agricultural worker employees with the protections that the WPS requires for workers. (In the WPS itself, “worker employers” are called “_____.”)

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Hired workers and handlers
E. Hand labor operations
F. None of the Above

Handler Employers:

15. Handler employers are people who: employ pesticide handlers (including members of their family), for any type of compensation, or are self-employed as_____.

A. Worker(s)
B. Handler(s)
C. Pesticide handlers
D. Workers and handlers
E. Employe(es)
F. None of the Above

Topic 7 Beneficial Insect Identification

18 final exam questions. (s) Means answer can be singular or plural.

Mealybug Destroyers

1. Both the larvae and adults of this lady beetle feed on mealybugs. They may also feed on aphids and immature scale insects. Each adult female lays hundreds of eggs in mealybug egg masses. When the beetle larvae hatch, they feed on _____.

A. Scale insects or spider mites
B. White silken cocoons of parasites
C. Restriction of the colony
D. Spider mites, thrips, and their eggs
E. Immature mealybugs
F. None of the Above

Ground Beetles

2. While _____may vary widely, they are usually shiny. Black is a common color, sometimes with a metallic sheen of another color on their wing covers. Most ground beetles feed at night and hide in the soil or under debris during the day.

A. A starch in their saliva
B. Chagas disease
C. Shapes and colors
D. Yellowish to creamy
E. Very sensitive to touch
F. None of the Above

Lady Beetles

3. Lady beetles that feed on scale insects or spider mites do not lay their eggs in masses. Instead, eggs are laid singly on leaves or_____. Most lady beetle larvae are elongated in form and slightly pointed at the rear.

A. Under the cover of the scale insect
B. White silken cocoons of parasites
C. Restriction of the colony
D. Spider mites, thrips, and their eggs
E. Nectar- or pollen-producing plants
F. None of the Above

Rove Beetles

4. These fascinating insects may resemble a tiny scorpion when they hold the tip of their abdomen up in the air. They are _____and measure 1/10 to one inch long. Depending upon species, rove beetles prey upon aphids, springtails, mites, nematodes, slugs, snails, fly eggs and maggots. They also eat and help break down decaying organic material.

A. Slow moving
B. Fast moving
C. Small
D. Yellowish to creamy
E. Very sensitive to touch
F. None of the Above

Soldier Beetle

5. The adults are_____. They supplement their diet with nectar and pollen and can be minor pollinators. Soldier beetle populations can be increased by planting good nectar- or pollen-producing plants such as Asclepias or Solidago.

A. Similar to scale insects or spider mites
B. White silken cocoons of parasites
C. Part of the colony
D. Very sensitive to touch
E. Especially important predators of aphids
F. None of the Above

Assassin Bug

6. Some blood-sucking species, particularly Triatoma spp. and other members of the subfamily Triatominae (e.g., Paratriatoma hirsuta), are also known as kissing bugs due to their habit of biting humans in their sleep on the soft tissue of the lips and eyes; a number of these haematophagous species, located in Central and South America, are able to _____.

A. Have a starch in their saliva
B. Transmit venereal disease
C. Eat bananas
D. Emit a yellowish to creamy ice cream flavor
E. Kiss people
F. None of the Above

Minute Pirate Bug

7. Adults are 2–5 mm long and feed mostly on _____, but will also feed on pollen and vascular sap. These predators are common in gardens and landscapes. They have a fairly painful bite, but are not poisonous.

A. Scale insects or spider mites
B. White silken cocoons of parasites
C. Aphid lions
D. Spider mites, thrips, and their eggs
E. Nectar- or pollen-producing plants
F. None of the Above

Green Lacewings

8. They are voracious predators, attacking most insects of suitable size, especially soft-bodied ones (aphids, caterpillars and other insect larvae, insect eggs, and at high population densities also each other). Therefore, the larvae are colloquially known as "aphid lions" (also spelled "aphidlions") or "_____", similar to the related antlions. Their senses are weakly developed, except that they are very sensitive to touch.

A. Scale insects
B. Parasites
C. Aphid wolves
D. Ant tigers
E. Green monsters
F. None of the Above

Syrphid flies -Hoverflies

9. Hoverflies, sometimes called flower flies or syrphid flies, make up the insect family Syrphidae. As their common name suggests, they are often seen hovering or nectaring at flowers; the adults of many species feed mainly on nectar and pollen, while the larvae (maggots) eat_____.

A. Scale insects or spider mites
B. Other parasites
C. A wide range of foods
D. Spider mites, thrips, and their eggs
E. Nectar- or pollen-producing plants
F. None of the Above

Parasitic Wasps

10. Females of many species have a spine-like egg-laying structure (ovipositor) at the tip of the abdomen. Larval stages are usually not observed unless they are dissected from hosts (internal parasites) or_____.

A. Omit a starch in their saliva
B. Present Chagas disease
C. Detected on the host (external parasites)
D. Are yellowish to creamy
E. Are very sensitive to touch
F. None of the Above

Bald-faced Hornet

11. Every year, queens that were born and fertilized at the end of the previous season begin a new colony. The _____ selects a location for its nest, begins building it, lays a first batch of eggs and feeds this first group of larvae.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Queen(s)
D. Larvae(s)
E. Honey bee(s)
F. None of the Above

Honey Bees Apidae Family of Insects

12. Currently, there are only seven recognized species of _____ with a total of 44 subspecies, though historically, anywhere from six to eleven species have been recognized.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

Bumble Bee

13. Bumble bees form colonies. These colonies are usually much less extensive than those of honey bees. This is due to a number of factors including the small physical size of the nest cavity, the responsibility of a _____for the initial construction and reproduction that happens within the nest, and the restriction of the colony to a single season (in most species).

A. Single female
B. Mason bee(s)
C. Queen(s)
D. Larvae(s)
E. Honey bee(s)
F. None of the Above

Mason Bee

14. Smaller than a _____, mason bees resemble house flies more than honey bees. They are deep blue-black in color and have no stripes. Mason bees are native to North America. They are active pollinators between cherry blossom and apple blossom season, and then die out by summer.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

15. Attract _____ by providing them a home. Drill holes exactly 5/16-inch in diameter into wooden blocks and mount the blocks by cherry blossom season facing morning sun.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

Cuckoo Bee

16. Cuckoo Bees are parasites, in that the female cuckoo bee lays her eggs in the nest of other bees, primarily_____.

A. Digger bees and Andrenids
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

Centipede

17. Centipedes are predators, and mainly use their antennae to seek out their prey. The digestive tract forms a simple tube, with digestive glands attached to the mouthparts. Like insects, centipedes breathe through a tracheal system, typically with a single opening, or spiracle on each body segment. They excrete waste through _____

A. Scopa
B. Involucrum
C. Rectum
D. A single pair of malpighian tubules.
E. A starch in their saliva
F. None of the Above

Tachnid Flies

18. Adult flies feed on flowers and nectar from aphids and scale insects. As many species typically feed on pollen, they can be important pollinators of some plants, especially at higher elevations in mountains where bees are relatively few. The taxonomy of this family presents many difficulties. It is largely based on_____, but also on reproductive habits and on the immature stage.

A. Scopa
B. Involucrum
C. Number of factors
D. Morphological characters of the adult flies
E. Starch in their saliva
F. None of the Above

Topic 8 Honey Bee Detailed Section Post Exam

Biology and Habits of the Honey Bee

1. The honey bee undergoes complete metamorphosis, passing through four stages: egg, larva, pupa, and adult. Bees develop into three different castes:_____, queens, and drones.

A. Pupa
B. Soldiers(s)
C. Virgin queen(s)
D. Scout bees
E. Workers
F. None of the Above

2. During the next few days, glands and reproductive organs (in the_____) develop and mature.

A. Drones
B. Queen(s)
C. Virgin queen(s)
D. Scout bees
E. Queens and drones
F. None of the Above

3. _____ produce semen in about 12 days and queens begin to lay eggs about three days after mating. In a typical colony there will be only one laying queen, about 100 – 300 drones, and about 20,000 - 60,000 workers.

A. Drones
B. Kings(s)
C. Soldiers(s)
D. Scout bees
E. Each caste and among races
F. None of the Above

Virgin Queens

4. When mature, virgin queens take a mating flight and mate with 10-15 _____. In about three days the queen begins to lay eggs.

A. Drones
B. Queen(s)
C. Virgin queen(s)
D. Scout bees
E. Workers
F. None of the Above

5. _____may lay as many as 1,500 eggs in a single day and around 200,000 eggs in a year. The queen controls whether or not the eggs are fertilized, using sperm stored in her spermatheca.

A. Drones
B. A queen
C. Virgin queen(s)
D. Scout bees
E. Each caste and among races
F. None of the Above

The Domicile

6. The AHB swarms much more frequently than other honey bees. A colony is a group of bees with comb and brood. _____may either be managed (white hive boxes maintained by professional beekeepers) or wild (feral).

A. The AHB swarms
B. Swarm
C. The colony
D. Swirling mass of flying bees
E. Brood
F. None of the Above

7. A group of bees that are in the process of leaving their parent colony and starting a nest in a new location is called a "_____." Usually a new queen is reared to stay with the parent colony and the old queen flies off with the swarm.

A. AHB swarms
B. Swarm
C. Scout bee(s)
D. Swirling mass of flying bees
E. Brood
F. None of the Above

8. _____ often locate potential nest sites prior to swarming, but the swarm may spend a day or two clustered in impressive, hanging clumps on branches or in other temporary locations until the bees settle on a new nesting site. If they can't find a suitable location, the bees may fly several miles and cluster again.

A. The AHB swarms
B. Swarm
C. Scout bee(s)
D. Swirling mass of flying bees
E. Drones
F. None of the Above

9. When the swarm emerges from its domicile and settles in a cluster on a tree, certain "_____" communicate to it the availability of other domiciles. At least some of these domiciles may have been located by the scout bees before the swarm emerged.

A. Drones
B. Queen(s)
C. Virgin queen(s)
D. Scout bees
E. Each caste and among races
F. None of the Above

10. Pyrethrins are_____**.** Pyrethrins, bee killers derived from the flowers of the chrysanthemum, work quite well as a spray for controlling bee populations. Pyrethrins are not generally used to destroy entire bee colonies. Instead, as they only kill the bees that get sprayed directly, pyrethrins are usually just used to keep populations from getting too out of hand. Microcare Aerosol is a good brand.

A. Another natural bee pesticide
B. Hazardous
C. Used for bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

Topic 9 Africanized Honey Bee Section Post Exam

Apis mellifera

1. Africanized bees are simply a strain of _____, the same species introduced from Europe that produces our honey and pollinates many of our plants. An African strain was introduced to South America in an effort to produce a bee better suited to the tropics.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

2. African bees were brought to Brazil in 1956 by biologists wanting to create an _____that would perform well in the South American climate. But in 1957, measures to contain the colonies were accidentally removed and several swarmed into the countryside.

A. African/European hybrid
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Venezuelans

3. Although AHBs weren't the monsters seen in popular fiction, their aggressive response, coupled with our lack of experience, led to the deaths of hundreds of people and animals. South Americans soon learned to live with the bees. For example, the highest recorded number of fatalities due to AHB attacks in Venezuela was nearly a hundred people in 1978, but those numbers dropped to twenty by 1985. Beekeepers learned to take proper precautions and Venezuelans became familiar with potential dangers. _____ are a real and significant threat for those who must live with them, but they can be dealt with as long as the appropriate precautions and control measures are taken.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Summary

4. Africanized honey bees (Apis mellifera scutellata) and European honey bees (Apis m. mellifera) are the same species - they look the same, sting in defense of themselves or their nest, can only sting once, and have the same venom. _____ are slightly smaller (but because the bees look so much alike only a laboratory analysis can tell them apart).

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

5. The Africanized honey bee is simply a hybrid honey bee, a result of breeding the European honey bee, Apis mellifera mellifera, with the African honey bee, Apis mellifera scutellata. The genetic differences in the hybrid Africanized bee make its habits different from those of the _____cultured in the United States.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Domestic European honey bee
E. An African strain
F. None of the Above

Barbed Stingers

6. _____workers have barbed stingers. When either type of bee stings a human, it leaves both the stinger and tiny, attached venom sac. This causes the bee to die soon after. If you are stung, simply scrape the stinger out to remove it.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. European and Africanized
F. None of the Above

Excessive Swarming

7. The AHB will swarm more frequently than the EHB. Typically, an EHB colony swarms once every year or two; an AHB colony may swarm 4-8 times a year. Generally, an _____ swarm is much smaller than an EHB swarm; some aren't much larger than a coffee cup.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Reproductive Capacity

8. Compared with the EHB, the AHB devotes a greater percentage of its nest to brood production and less to honey storage. Because the developmental period of the _____ is shorter than that of the EHB, it's able to produce more bees in less time.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Mating Advantage

9. An AHB colony produces more drones than an EHB colony of equal size. In areas where the AHB has become established, the _____ queens appear to mate with AHB drones at a much higher frequency than with EHB drones.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Identification

10. Identifying the _____is very difficult. The characteristics used for identification differ only slightly and overlap considerably among individuals. Accurate identification is not only difficult but time-consuming and expensive.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Topic 10 Modern European Bee Hive Section Post Exam

Bee Pollen

1. Bee pollen is the male seed of a flower blossom which has been gathered by the bees and to which special elements from the bees has been added. The honeybee collects _____and mixes it with its own digestive enzymes.

A. Nectar
B. Propolis
C. Honey
D. Pollen
E. Temperate propolis and tropical propolis
F. None of the Above

2. _____contains from one hundred thousand to five million pollen spores each capable of reproducing its entire species.

A. Propolis
B. Sources of resin
C. Nectar
D. Male seed of a flower blossom
E. One pollen granule
F. None of the Above

3. _____is a wax-like, resinous substance that bees collect from tree buds, or other botanical sources, and use as a sealant for unwanted open spaces in the hive.

A. Nectar
B. Propolis
C. Honey
D. Digestive enzymes
E. Temperate propolis and tropical propolis
F. None of the Above

4. Bees usually carry _____ out of and away from the hive. However if a small lizard or mouse, for example, found its way into the hive and died there, bees could be unable to carry it out through the hive entrance. In that case, they would attempt instead to seal the carcass in propolis, essentially mummifying it and making it odorless and harmless.

A. Propolis
B. Sources of resin
C. Nectar
D. Male seed of a flower blossom
E. Pollen
F. None of the Above

Composition of Propolis

5. The composition of propolis will vary from hive to hive, district to district, and from season to season. Normally it is dark brown in color, but it can be found in green, red, black and white hues, depending on the sources of resin found in the particular hive area. Bees are opportunists, and will gather what they need from_____.

A. Nectar
B. Propolis
C. Honey
D. Available sources
E. Temperate propolis and tropical propolis
F. None of the Above

6. The honeybees return to the hive and pass the _____onto other worker bees. These bees suck the nectar from the honeybee's stomach through their mouths. These "house bees" "chew" the nectar for about half an hour.

A. Nectar
B. Propolis
C. Honey
D. Digestive enzymes
E. Temperate propolis and tropical propolis
F. None of the Above

7. The bees make the _____ dry even faster by fanning it with their wings. Once the honey is gooey enough, the bees seal off the cell of the honeycomb with a plug of wax. The honey is stored until it is eaten.

A. Propolis
B. Sources of resin
C. Nectar
D. Male seed of a flower blossom
E. Pollen
F. None of the Above

Carbohydrate Element

8. _____form the energy (or carbohydrate) element of the bees' diet while pollen forms the proteinaceous part of their diet. Both pollen and nectar are essential to normal colony growth. Without nectar the colony has no energy with which to perform its normal tasks and without pollen young bees cannot be reared.

A. Nectar
B. Propolis
C. Honey
D. Nectar and honey
E. Temperate propolis and tropical propolis
F. None of the Above

Honey Bee Behaviors

9. _____is another of those honey bee behaviors that isn't completely understood, but we can draw some conclusions based on repeated observations.

A. Propolis collection
B. Stinging
C. Nectar chewing
D. Absconding
E. Reproduction
F. None of the Above

Colony Collapse Disorder

10. Adult bees are gone, but honey, _____and some brood remain behind. The difference in absconding and CCD is that the honey, pollen and brood are left behind Sometimes the queen and a handful of bees are left in the hive. Opportunists (SHB and wax moths) seem slower to take over when CCD is the cause of the dead hive.

A. Nectar
B. Propolis
C. Honey
D. Pollen
E. Temperate propolis and tropical propolis
F. None of the Above

Topic 11 Bee Control Section Post Exam

General Bee Control and Treatments

1. In some cases, attempting to destroy a nest becomes a greater health risk than simply tolerating and avoiding it. But nests, especially those of social species, should be destroyed if they are close enough to humans to pose a _____.

A. Nest(s)
B. Thousand bees
C. Hazard
D. First males
E. Stinging threat
F. None of the Above

2. The nests of honey bees, bumble bees, yellowjackets and hornets should always be approached with caution, preferably at night when most of the workers are present but reluctant to fly. Try not to carry a light, as wasps and bees may fly toward it. Instead, set the light aside or cover it with red cellophane (insects cannot see red light). If there is direct access to the nest, a fast-acting dust or wettable powder formulation can be applied. If possible, inject the material into the _____.

A. Nest(s)
B. Thousand bees
C. Net
D. Hole
E. Crack
F. None of the Above

3. If you must approach these nests during daytime, _____ can be used to keep the bees/wasps at bay, while you treat the nest as above. Heavy clothing or a "bee suit" can be worn for added protection.

A. Odor
B. Bear
C. Dusting device
D. Heat spray
E. An application
F. None of the Above

Mechanical Control Remove bees from the house with a vacuum cleaner

4. Unless you have a thousand bees swarming your face, the _____is a great way to get rid of bee pests that are in the house. Simply use the hose attachment and suck them into oblivion.

A. Smoke
B. Vacuum cleaner
C. Dusting device
D. Heat spray
E. An application
F. None of the Above

Specific Bee Treatments

5. Certain _____are harmful to bees. That's why we require instructions for protecting bees on the labels of pesticides that are known to be particularly harmful to bees. This is one of many reasons why everyone must read and follow pesticide label instructions.

A. Smoke
B. Vacuum cleaner
C. Dusting device
D. Heat spray
E. Pesticides
F. None of the Above

Application of Pest Products

6. When a _____is completely filled to its capacity, or when dust is packed down inside the duster, dust does not come out in proper form.

A. Hand bellows duster
B. Vacuum cleaner
C. Dusting device
D. Back pack
E. Bee kill machine
F. None of the Above

Aldicarb

7. Aldicarb is a carbamate insecticide which is the active substance in the pesticide _____. It is effective against thrips, aphids, spider mites, lygus, fleahoppers, and leafminers, but is primarily used as a nematicide.

A. Four stereoisomers
B. An enzyme
C. Insecticidal concentrations
D. An insecticide and as molluscicide
E. Nicotine-based, systemic insecticide
F. None of the Above

Carbofuran

8. It is_____, which means that the plant absorbs it through the roots, and from here the plant distributes it throughout its organs where insecticidal concentrations are attained. Carbofuran also has contact activity against pests.

A. Four stereoisomers
B. An enzyme
C. Insecticidal concentrations
D. An insecticide and as molluscicide
E. A systemic insecticide
F. None of the Above

Diazinon

9. Diazinon kills insects by_____, an enzyme necessary for proper nervous system function. Diazinon has a low persistence in soil. The half-life is 2 to 6 weeks. The symptoms associated with diazinon poisoning in humans include weakness, headaches, tightness in the chest, blurred vision, nonreactive pinpoint pupils, excessive salivation, sweating, nausea, vomiting, diarrhea, abdominal cramps, and slurred speech.

A. Four stereoisomers
B. Inhibiting acetylcholinesterase
C. Insecticidal concentrations
D. An insecticide and as molluscicide
E. Nicotine-based, systemic insecticide
F. None of the Above

Imidacloprid

10. Imidacloprid is a nicotine-based, systemic insecticide, which acts as a neurotoxin and belongs to a class of chemicals called the_____.

A. Four stereoisomers
B. Neonicotinoids
C. Insecticidal concentrations
D. Molluscicide
E. Nicotine-based, systemic insecticide
F. None of the Above

Malathion

11. Malathion is a pesticide that is widely used in agriculture, residential landscaping, public recreation areas, and in public health pest control programs such as mosquito eradication. In the US, it is the most commonly used_____.

A. Four stereoisomers
B. Organophosphate insecticide
C. Insecticidal concentrations
D. Bird repellent
E. Nicotine-based, systemic insecticide
F. None of the Above

Methiocarb

12. Methiocarb is a chemical mainly used as a bird repellent, as an insecticide and as molluscicide. It is toxic to humans, not listed as_____, is toxic to reproductive organs, and a potent neurotoxin.

A. Four stereoisomers
B. An enzyme
C. Insecticidal concentrations
D. A carcinogen
E. Nicotine-based, systemic insecticide
F. None of the Above

Permethrin

General Information

13. Permethrin is_____. It is available in dusts, emulsifiable concentrates, smokes, ULV concentrates, and wettable-powder formulations.

A. Four stereoisomers
B. A broad-spectrum pyrethroid insecticide
C. Insecticidal concentrations
D. An insecticide
E. Systemic insecticide
F. None of the Above

Resmethrin

14. Resmethrin is _____with many uses, including control of the adult mosquito population. The resmethrin molecule has four stereoisomers determined by cis-trans orientation around a carbon triangle and chirality.

A. Four stereoisomer
B. An enzyme
C. Insecticidal spray
D. An insecticide
E. A pyrethroid insecticide
F. None of the Above

Colony cycle

15. Early in the colony cycle, the queen bumble bee compensates for potential reproductive competition from workers by suppressing _____by way of physical aggression and pheromonal signals. Thus, the queen will usually be the mother of all of the first males laid.

A. Their egg-laying
B. Pollen collecting
C. Honey production
D. The first males
E. Stinging threat
F. None of the Above

Topic 12 Bee-Related Inspections Section Post Exam

1. For the safety of the inspector and the hive, in-hive inspections should **NOT** be attempted by an inspector if the inspector does not have experience with handling bee colonies. Bees, hives, frames, etc., must be handled by the beekeeper, an accompanying state apiarist, or an inspector with knowledge of bee colonies and/or beekeeping training. _____should be properly dressed with bee protective clothing/attire to minimize the risk of bee stings regardless of whether they personally handle a hive.

A. Beekeepers
B. Workers
C. Employees
D. Honey production handlers
E. Inspectors
F. None of the Above

2. To determine how a bee hive or colony was exposed to _____, the inspector must rely on additional observations or sample collection from the hive, the site where the bees died, areas adjacent to the bee hive, etc.

A. Chance of vandalism
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

3. _____should be collected from fresh honey in the top of the hive and pollen samples should be collected from uncapped (i.e., recently collected) pollen chamber near the brood chamber. Brood chamber, wax and other areas of the hive may contain residues collected over time.

A. Honey samples
B. Brood chamber
C. Pollen
D. Honey production
E. Brood wax
F. None of the Above

4. When sampling pollen and/or honey from comb, care should be taken not to include wax since wax can contain a different spectrum of pesticides than what may actually be present in pollen or honey. _____is generally dark brown to black. Honey wax is pale and light colored.

A. Unique batches
B. Brood chamber
C. Pollen
D. Honey production
E. Brood wax
F. None of the Above

5. Keep in mind that when sampling pollen from the comb, bees do not typically store pollen in_____. Pollen collected from a number of floral sources over time may be stored in the same cell of the comb.

A. Unique batches
B. Brood chamber
C. Pollen
D. Honey production
E. Brood wax
F. None of the Above

6. Prior to conducting an inspection related to bee deaths, the inspector should contact the laboratory that will analyze_____.

A. Any physical samples collected
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

7. _____may be located on wooden pallets to facilitate transport or to ready colonies for deployment to pollination locations; these colonies also tend to be of relatively uniform dimensions in order to facilitate stacking during transport.

A. Migratory colonies
B. Brood chamber
C. Pollen
D. Honey production
E. Nutritional and energy needs
F. None of the Above

8. Bee death may also be caused by exposure to pesticides. _____may occur through drift of pesticides from aerial or ground applications immediately adjacent to where colonies are located and/or to areas where bees may be foraging for food and/or water.

A. Chance of vandalism
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. Colony exposure
F. None of the Above

9. While bees will forage to meet the nutritional and energy needs of the colony and typically select forage that represents a preferred source of both pollen and nectar, they may also forage on less preferred sources of _____ based on availability.

A. Beekeeper
B. Brood chamber
C. Pollen
D. Honey production
E. Nutrition and water
F. None of the Above

10. Apiary locations are typically well hidden to limit the _____.

A. Chance of vandalism
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

Topic 13 Wasp Identification

10 final exam questions. (s) Means answer can be singular or plural.

Yellowjackets

1. The Blue Mud Wasp is another solitary wasp less common but present in our area. This wasp seems incapable of building her own mud nest, but is able to repair and use abandoned nests. The _____ is at the top of her menu.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Black Widow spider
E. D. (formerly known as V.) maculata
F. None of the Above

2. The social wasps can be fractured into 2 groups, the Yellowjackets / Hornets and_____.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. D. (formerly known as V.) maculata
F. None of the Above

Yellowjackets

3. These wasps tend to be medium sized and black with jagged bands of bright yellow—or white in the case of the aerial-nesting_____—on the abdomen and have a very short, narrow “waist,” the area where the thorax attaches to the abdomen.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Digger bees and Andrenids
E. D. (formerly known as V.) maculata
F. None of the Above

4. V. vulgaris ranges across Canada and the northeastern United States. Common in higher elevations, it nests in shady evergreen forests around parks and camps in the western mountains and the eastern Appalachians. This species also is _____.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. D. (formerly known as V.) maculata
F. None of the Above

Eastern Yellowjacket (Vespula maculifrons)

5. The Eastern yellowjacket sometimes nests in building wall voids. Most yellowjackets have very slightly barbed stingers but the sting will not set in the victim's tissue like the barbed stinger of the honey bee. The stinger of _____, however, often sticks and when the insect is slapped off, the stinger may remain.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Andrenids
E. D. (formerly known as V.) maculata
F. None of the Above

German yellowjacket (Vespula germanica)

6. _____may be active in protected voids into November and December when outside temperatures are not severe.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. Colonies of this yellowjacket
F. None of the Above

Paper Wasp

7. Common areas their nests can be found include on walls or under eaves of homes and other buildings. Nest construction begins in the Spring and construction and maintenance continues as long as the colony continues to grow. _____gather fibers form old decaying wood or dead, dry plants, chew them up and mix the debris with water to make their grey paper nest. Populations in these nests rarely ever exceed 200.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Wasps
E. D. (formerly known as V.) maculata
F. None of the Above

Yellowjacket Management
Inspection

8. Entrance holes sometimes have bare earth around them. Entrance holes in structures are usually marked by_____. Nests high in trees should not be problems. Be sure to wear a bee suit or tape trouser cuffs tight to shoes.

A. Fast flying workers entering and leaving
B. Bare earth
C. Reddish dust
D. Rapidly lower nest temperature
E. Paralyzed tarantula
F. None of the Above

Pesticide Application

9. When possible, treat ground and aerial nests after dark [Workers are in the nest at that time]. More often than not, because of_____, treatment will be scheduled for the daytime.

A. The dark
B. Bare earth
C. Toxic dust
D. Rapidly lower nest temperature
E. Traditional work schedules
F. None of the Above

Umbrella Wasps (Polistes spp. and Mischocyttarus flavitarsis)

10. Umbrella wasps are also commonly referred to as paper wasps. These wasps have been named _____because their nests are the shape of an inverted umbrella. They usually have small nests and are usually inhabited by about 250 wasps.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. Umbrella wasps
F. None of the Above

Topic 14 Common Crop Insects and Pesticide Controls

18 final exam questions. (s) Means answer can be singular or plural.

Flamer

1. The flamer was used repeatedly on the field edges during the time the overwintering beetles migrate from the edge of the field. One or two passes in the field during that time also controlled overwintering_____. In addition to killing larvae, the flamer reduced egg hatch by 35%.

A. Flamer
B. Beetles
C. Cowpea Curculio
D. European Corn Borer
E. Vetchworm
F. None of the Above

Corn Earworm

2. Corn earworm has a wide host range; hence, it is also known as "tomato fruitworm," "sorghum headworm," "vetchworm," and "_____." In addition to corn and tomato, perhaps its most favored vegetable hosts, corn earworm also attacks artichoke, asparagus, cabbage, cantaloupe, collard, cowpea, cucumber, eggplant, lettuce, lima bean, melon, okra, pea, pepper, potato, pumpkin, snap bean, spinach, squash, sweet potato, and watermelon.

A. Flamer
B. Corn Earworm
C. Cowpea Curculio
D. European Corn Borer
E. Vetchworm
F. None of the Above

Cowpea Curculio

3. Cowpea curculio adults pass the winter in crop refuse or weeds, particularly brown sedge, around previously infested plants. The _____, or weevils, leave their overwintering sites from April through July.

A. Flamer
B. Corn Earworm
C. Cowpea Curculio
D. European Corn Borer
E. Vetchworm
F. None of the Above

4. _____ puncture developing pods with their snouts as they feed. Females lay a single egg in some of the feeding wounds. About 4 days later, brown-headed grubs emerge and infest the seeds of beans and peas.

A. Flamers
B. Corn Earworms
C. Cowpea Curculios
D. European Corn Borers
E. Weevils
F. None of the Above

5. The only feasible approach to control of _____ is a preventive spray program.

A. Flamers
B. Corn Earworms
C. Cowpea Curculios
D. European Corn Borers
E. Weevils
F. None of the Above

6. _____will be a serious pest of peas from first bloom until harvest. The current recommended spray schedule begins with a spray at first bloom and repeat treatments made on a five-day schedule until five applications have been made.

A. Flamer
B. Corn Earworm
C. Curculios
D. European Corn Borer
E. Imported Cabbageworm
F. None of the Above

European Corn Borer

7. European corn borer (ECB) is a pest of many crops including corn, peppers, potato, and snap bean. In corn, mature _____overwinter in stalks, ears, stubble and other plant residue left in the field. Adults emerge and lay eggs in masses on leaf undersides. In 3 to 10 days, larvae hatch and feed on the leaf surface.

A. Flamer
B. Corn Earworm
C. Curculios
D. European Corn Borer
E. European corn borer larvae
F. None of the Above

Fall Armyworm

8. Unlike the_____, which feeds primarily on corn and other grasses, the fall armyworm will feed on just about any plant. Damage is especially severe to late sweet corn and field corn, but the fall armyworm will eat kale, collards, turnip greens, cabbage, broccoli, spinach, snap beans, tomatoes, soybeans, potatoes, sweet potatoes, cucumbers, and many ornamentals.

A. Fall Armyworm
B. True armyworm
C. Vegetable Leafminers
D. Mexican Bean Beetle
E. Tomato caterpillar pests
F. None of the Above

Flea Beetles

9. Flea beetle attack is sudden and can destroy young plants, so fields should be scouted daily. Three to four generations can be produced annually. _____is effective, since flea beetles migrate in from weedy areas.

A. Killing larvae
B. Damage
C. Spray application
D. Leaving their overwintering sites from April through July
E. The only feasible approach to control
F. None of the Above

10. Flea beetle _____ also damage plant roots.

A. Fall Armyworm
B. Flea beetle larvae
C. Vegetable Leafminers
D. Mexican Bean Beetle
E. Tomato caterpillar pests
F. None of the Above

Vegetable Leafminers

11. The adults are principally yellow and black in color. The shiny black mesonotum of L. sativae is used to distinguish this fly from the closely related_____, Liriomyza trifolii which has a grayish black mesonotum.

A. Fall Armyworm
B. Flea Beetles
C. American serpentine leafminer
D. Mexican Bean Beetle
E. Tomato caterpillar pests
F. None of the Above

Pepper Maggot

12. Adult flies are attracted to rotting peppers, so removal of rotting fruit from fields reduces the attractiveness of fields to egg laying flies. Destroy infested fruit and cull piles as they serve as reservoirs for future infestations. Another cultural control is _____.

A. Rotation
B. Elytron
C. Biological controls
D. IPMs
E. IGRs
F. None of the Above

Pickleworm

13. Pickleworm populations can be lowered by planting early, plowing deeply before planting and rotating crops. Chemical control measures must be started as soon as pickleworm adults appear, since insecticides cannot reach _____inside the flower and developing fruit.

A. Pepper Maggot
B. Pickleworm
C. Squash Vine Borer
D. Squash Bug
E. Larvae
F. None of the Above

14. _____for adult pickleworms and monitoring guidelines are under development. Researchers in South Carolina found that in 42 cucumber fields over 2 years, where moths and larvae were present the adults were trapped before or during the same week that larvae were first detected in the crop.

A. Rotation controls
B. Spraying
C. Biological controls
D. Pheromone lures
E. Cluster lures
F. None of the Above

Squash Vine Borer

15. Squash vine borer is a _____, particularly squashes. Small, flattened brown eggs are deposited singly on leaf petioles, stems, and fruit. Soon after they enter the stem or fruit to feed, the larvae extrude sawdust-like frass from bore- holes in the stem or fruit. Damaged stems wilt and die and fruit are unmarketable.

A. Feed
B. Drain plants
C. A pest of cucurbits
D. Burrow deep into the soil
E. Serious infestation insect
F. None of the Above

Squash Bug

16. Adult squash bugs move to plants from various adjacent (and sometimes within field) protected overwintering sites. _____deposit brownish-red eggs in clusters on a lower leaf surfaces. Newly emerged nymphs are small and greenish with black legs.

A. First generation adults
B. Pickleworm
C. Squash Vine Borer
D. Adult females
E. Larvae
F. None of the Above

Wireworms

17. Wireworms are the larval form of a _____. After a short pupation, adults emerge and females lay about 175 eggs. To escape the hot, dry summer and cold winter, wireworms burrow deep into the soil.

A. Wireworms
B. Sweetpotato Weevil
C. Dark-brown click beetle
D. Silverleaf Whitefly
E. Adults and larvae
F. None of the Above

18. The orange-brown_____, which take 4 to 5 years to mature, are very destructive when they feed on developing potato tubers, seed pieces, and roots. Young potato tubers injured by wireworms often become misshapen.

A. Wireworms
B. Sweetpotato Weevil
C. Dark-brown click beetle
D. Larvae
E. Adults and larvae
F. None of the Above

Topic 15 Cotton Insect and Related Pest Identification

4 final exam questions. (s) Means answer can be singular or plural.

Plant Bugs

1. The large and diverse insect family Miridae contains the plant bugs, leaf bugs, and grass bugs, and may also be known as_____. It is the largest family of true bugs belonging to the suborder Heteroptera, with over 10,000 known species and new ones constantly being described.

A. Shield bug(s)
B. Soybean looper(s)
C. Larvae(s)
D. Capsid bugs
E. Aphid(s)
F. None of the Above

Spider Mites

2. Two-spotted spider mite is one of the more common of several species of mites that attack cotton. _____are not insects, but are closely related.

A. Shield bug(s)
B. Soybean looper(s)
C. Mites
D. Two-spotted spider mite(s)
E. Aphid(s)
F. None of the Above

Agricultural Pest Insects

3. The idiomatic term "stink bug" is also applied to distantly related species such as Boisea trivittata, the "boxelder bug", and entirely different types of insects such as beetles in the genus Eleodes ("_____"). In its native range, it feeds on a wide variety of host plants. Fruits attacked include apples, peaches, figs, mulberries, citrus fruits and persimmons.

A. Shield bug(s)
B. Pinacate beetle(s)
C. Larvae(s)
D. Stink bug(s)
E. Boxelder bug(s)
F. None of the Above

Loopers

4. Two species of loopers are commonly found in cotton, the _____and the soybean looper.

A. Shield bug(s)
B. Soybean looper(s)
C. Larvae(s)
D. Cabbage looper
E. Aphid(s)
F. None of the Above

Topic 16 - 1 node Ant Identification and Control Section Post Exam

6 final exam questions. (s) Means answer can be singular or plural

Ant Control

1. _____ can again be a useful tool in eradicating inside-the-home ant nests, although baits may not work as well with carpenter ants as with the other species mentioned.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Pressure or combination pressure/diffusion treatment
F. None of the Above

Carpenter Ants

2. Carpenter ants are most active in the evening hours, foraging for all kinds of food, both inside the house and outside. By following the ants, you may be able to tell where the nest is. Because carpenter ants keep the tunneled galleries very clean and push the _____out small holes in the wood, a small, fresh pile of sawdust under the nest timber is the usual sign of an active carpenter ant nest.

A. Red Imported Fire Ant(s)
B. Argentine ant(s)
C. Carpenter ant(s)
D. Red Harvester Ant(s)
E. Ghost Ant(s)
F. None of the Above

Ghost Ant
Foraging and feeding

3. Workers follow scent trails along the edges of structures for protection. They can often be spotted trailing under the edge of carpets and up the sides of the building, searching for _____.

A. Scent trails
B. Inside-the-home ant nests
C. Mounds of soft soil
D. Nest(s)
E. Brood chamber(s)
F. None of the Above

Harvester Ants

4. Red Harvester Ants can be aggressive and have a painful sting that spreads through the lymph nodes, sometimes causing reactions, especially in animals allergic to their venom. They can also bite ferociously.

Over the years, their numbers have been declining, and this has often been attributed to competition for food with the invasive Red Imported Fire Ant and the _____.

A. Red Imported Fire Ant(s)
B. Argentine ant(s)
C. Carpenter ant(s)
D. Red Harvester Ant(s)
E. Ghost Ant(s)
F. None of the Above

Locate and Treat Colonies

5. Drench colonies living in the soil or under items on the exterior with_____. With mulch, be sure to rake it back to get good penetration where colonies may be thriving. Follow up with a broadcast application of granule such as Talstar G.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Demand, Suspend, or Tempo
F. None of the Above

6. If you know with some certainty where the colony is living inside, then you can treat them directly by drilling a small hole into the wall void at the base (directly above the baseboard) and injecting a dust, such as _____.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Pressure or combination pressure/diffusion treatment
F. None of the Above

Topic 17 - 2 node Ant Identification and Control Section Post Exam

6 final exam questions. (s) Means answer can be singular or plural.

Black Ant

1. Simply picking up rocks and debris around the house will also help. If the ants are nesting in the house, the wall voids will need to be dusted with _____ in areas where ant baits are not to be used. Ant infestation are not easy to control and different strategies should be used depending on nest location and food preferences of the ants.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Demand, Suspend, or Tempo
F. None of the Above

Red Imported Fire Ants

2. Red imported fire ants (RIFA) are medium sized ants that build _____ rarely larger than 18" in diameter. The ants emerge out aggressively when they are disturbed and sting. Their sting usually leaves a white pustule the next day.

A. Scent trails
B. Inside-the-home ant nests
C. Mounds of soft soil
D. Nest(s)
E. Brood chamber(s)
F. None of the Above

Specific Actions

3. If the nest is exposed (e.g. due to remodeling or reroofing) you can use_____, such as bifenthrin, cyfluthrin, deltamethrin, or permethrin. Spray the insecticide directly into as much of the nest as possible.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. A liquid or aerosol ready-to-use insecticide
E. Pressure or combination pressure/diffusion treatment
F. None of the Above

Bait Treatments

4. In a process known as trophallaxis, one ant regurgitates its stomach contents to another ant. This food sharing behavior enables the bait to be spread throughout the colony before the _____takes effect.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Toxicant
F. None of the Above

Borates- Information is also found on page 416.

5. Unlike most other wood preservatives and organic insecticides that penetrate best in dry wood, borates are_____—they penetrate unseasoned wood by diffusion, a natural process. Wood moisture content and method and length of storage are the primary factors affecting penetration by diffusion.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Diffusible chemicals
F. None of the Above

6. Application methods include momentary immersion by_____; pressure or combination pressure/diffusion treatment; treatment of composite boards and laminated products by treatment of the wood finish; hot and cold dip treatments and long soaking periods; spray or brush-on treatments with borate slurries or pastes; and placement of fused borate rods in holes drilled in wood already in use.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Bulk dipping
F. None of the Above

Agricultural Pesticide Control CEU Training Assignment #4
Last Names T to Z Only

You will have 90 days from the start of this course to have successfully pass this assignment with a score of 70 %. You may email the answers to TLC, info@tlch2o.com or fax the answers to TLC, (928) 272-0747. This assignment is available to you in a Word Format on TLC's Website. You can find online assistance for this course in Adobe Acrobat's Search function. Once you have paid the course fee, you will be provided complete course support from Student Services (928) 468-0665.

You will need to pick one of the following three assignments to complete. This selection process is based upon your last name. If your last name begins with an A to G, you will pick assignment number 1, if your last name begins with the letter H to M, you are to complete assignment number 2 and if your last name begins with the letter N-S, you will pick assignment number 3 and if your last name starts with T to Z you need to complete assignment #4. If you are a repeat student, please take the alterative version # 5 assignment.

Topic 1 Pesticide Fundamentals Introduction

12 final exam questions. (s) Means answer can be singular or plural.

Complete all topics before submitting the answers key.

Pyrethroids

1. To mimic the insecticidal activity of the natural compound pyrethrum another class of pesticides, pyrethroid pesticides, has been developed. These are_____, which is a sodium channel modulators, and are much less acutely toxic than organophosphates and carbamates.

A. Persistent
B. Environmentally safe
C. Non-persistent
D. Natural compound pyrethrum
E. Inhalation and dermal absorption hazards
F. None of the Above

2. _____ are formulated as emusifiable concentrates (EC), wettable powders (WP), granulars (G), and aerosols.

A. Insect growth regulator(s)
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Phosphoric acid esters
F. None of the Above

3. Certain _____exhibit striking neurotoxicity in laboratory animals when administered by intravenous injection, and some are toxic by the oral route.

A. Insect growth regulator(s)
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Phosphoric acid esters
F. None of the Above

4. Systemic toxicity by _____ are low, however—there have been very few systemic poisonings of humans by pyrethroids.

A. Atmospheric deposition
B. Applications
C. Higher organisms
D. Insecticidal activity of the natural compound pyrethrum
E. Inhalation and dermal absorption
F. None of the Above

Borates

5. Wood moisture content and method and length of storage are the primary factors affecting penetration by _____. Properly done, diffusion treatments permit deep penetration of large timbers and refractory (difficult-to-treat) wood species that cannot be treated well by pressure.

A. Inert ingredients
B. Pesticide levels
C. Water characteristics
D. Wood moisture content
E. Chemistry
F. None of the Above

Properties of Pesticides

6. The properties of pesticides determine their_____. The important properties are persistence, volatility, and solubility in water.

A. Atmospheric deposition
B. Environment
C. Insecticidal activity
D. Fate and behavior in the environment
E. Inhalation and dermal absorption
F. None of the Above

Properties of the Environment

7. Water characteristics also vary and influence pesticide behavior. Some of the characteristics are acidity, depth, temperature, clarity, flow rate,_____.

A. And inert ingredients
B. And pesticide levels
C. And water characteristics
D. And wood moisture content
E. Presence of biological organisms and general chemistry
F. None of the Above

8. Living organisms accumulate certain pesticides. Through the process of bioaccumulation, pesticides accumulate in lower organisms and are passed to higher organisms in the food chain when _____.

A. Deposition occurs
B. Absorbed
C. Inert ingredients are high
D. Insecticidal activity is absorbed
E. Inhaled and dermally absorbed
F. None of the Above

9. _____will accumulate the pesticides at higher levels than their food source. Pesticide levels in fish, for example, can be tens to hundreds of thousands of times greater than ambient water levels in which they live.

A. Inert ingredients
B. Pesticide levels
C. Water characteristics
D. The higher organism
E. Chemistry
F. None of the Above

10. Humans are at the top of the food chain. They bioaccumulate the pesticides accumulated by the lower animals and plants that they eat. It is not only fish but also domestic farm animals and plant food which can accumulate_____. Care must be used in the use of pesticides in agricultural as well as home and garden scenarios.

A. Inert ingredients
B. Insecticide levels
C. Spray characteristics
D. Pesticides
E. Application pesticide chemistry
F. None of the Above

11. _____ are designed to preserve the active ingredients, make them easier to apply or improve their killing ability.

A. Inert ingredients
B. Pesticide levels
C. Product characteristics
D. Adjutant content
E. Chemistry
F. None of the Above

12. Children and individuals with impaired immune systems are more vulnerable than adults to_____.

A. Inert ingredients
B. Pesticide levels
C. Pesticide poisoning
D. Chemical content
E. Various products
F. None of the Above

Topic 2 Agricultural Pesticide Application Information

15 final exam questions. (s) Means answer can be singular or plural.

New and Required EPA Information

1. Precise estimates of the number of _____ who will be covered by the WPS are unknown, but the EPA estimates that nearly 5 million owners, operators, family members, hired workers and handlers could be affected.

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Workers and handlers
E. Hand labor operations
F. None of the Above

Employers covered by the WPS must:

2. Reduce overall exposure to pesticides by prohibiting handlers from exposing workers during pesticide application, excluding workers from areas being treated and areas under a restricted entry interval, and_____. Some activities are allowed during restricted entry intervals if workers are properly trained and protected.

A. Work Activities
B. Pesticide application
C. Pesticide(s)
D. Notifying workers about treated areas
E. Potential hazards from toxicity and exposure
F. None of the Above

3. States may also issue worker protection standards that are stricter than the WPS. Therefore, employers should contact their State agency that regulates the Federal Insecticide, Fungicide, and Rodenticide Act in cooperation with the _____to determine whether they must comply with the WPS and local regulations. Nothing in this report replaces technical and professional legal advice.

A. WPS provisions
B. States
C. Annual mandatory training
D. EPA
E. Standards
F. None of the Above

Agricultural Employers Responsibility
New WPS Requirements 2015-2018

4. _____ includes instructions to reduce take-home exposure from pesticides on work clothing and other safety topics.

A. WPS provisions
B. Expanded training
C. Annual mandatory training
D. Personal protective equipment
E. Standards
F. None of the Above

What Will These Changes Achieve?

5. By better protecting our agricultural workers, the agency anticipates fewer pesticide exposure incidents among farmworkers and their family members. Fewer incidents mean a healthier workforce and avoiding lost wages, medical bills, and absences from work and school. In addition, EPA is concerned about _____that may contribute to chronic illness.

A. WPS provisions
B. States
C. Annual mandatory training
D. Personal protective equipment
E. Low level, repeated exposure to pesticides
F. None of the Above

What Types of Activities Are Covered?

6. The regulation seeks to protect and reduce the risks of injury or illness resulting from agricultural workers' (those who perform hand-labor tasks in pesticide-treated crops, such as harvesting, thinning, pruning) and pesticide handlers' (those who mix, load and apply pesticides) use and contact with pesticides on farms, forests, nurseries and greenhouses. The regulation does not cover _____working with livestock.

A. Worker(s)
B. Handler(s)
C. Persons
D. Hired workers and handlers
E. Hand labor operations
F. None of the Above

Family Exemption

7. There is an “immediate family” exemption to the WPS that exempts family members from MOST of the WPS protections. However, family members must still use label required _____ and still must obey the REIs (Restricted Entry Intervals) and the other label requirements.

A. AEZ
B. REI
C. WPS
D. PPE
E. OSHA
F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

Central Location

8. Of course you will still need to keep pesticide application information for _____ days at the central location and the pesticide safety information (poster). The central location must be easily accessible to your employees.

A. 30
B. 45
C. 60
D. 7
E. 360
F. None of the Above

Protection Against Retaliatory Acts

9. Requirements of this subpart designed to reduce the risks of illness or injury resulting from workers' occupational exposure to pesticides, including application and entry restrictions, the design of the warning sign, posting of warning signs, oral warnings, the availability of specific information about applications, and the_____.

A. WPS provisions
B. Protection against retaliatory acts
C. Annual mandatory training
D. Personal protective equipment
E. Safe level
F. None of the Above

Four Basic Requirements

10. There are specific _____ for 12 pesticides, interim restrictive entry levels for certain pesticides, and a general re-entry interval for all other agricultural pesticides prohibiting re-entry into treated areas until sprays have dried, dusts have settled, and vapors have dispersed;

A. AEZ
B. REI
C. WPS
D. EPA
E. OSHA
F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

Mitigating Exposures

11. _____ will be accomplished by requiring decontamination supplies and emergency assistance.

A. Emergency assistance
B. Labeling of the pesticide
C. PPE
D. Requirements in the standard
E. Mitigating exposure(s)
F. None of the Above

Worker Protection Standard for Agricultural Pesticides

12. Provisions of the WPS apply to: Owners or managers of farms, forests, nurseries, or greenhouses where pesticides are _____agricultural plants. Those who hire or contract for services of agricultural workers to do tasks related to the production of agricultural plants on a farm, forest, nursery, or greenhouse.

A. Used in the production of
B. Work
C. Apply
D. Mix, load, or apply agricultural pesticide(s)
E. Tasks related to growing
F. None of the Above

General Duties of WPS

13. Require each person who supervises _____to assure compliance by the worker or handler with the provisions of this standard and to assure that the worker or handler receives the required protection (40 CFR).

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Any worker or handler
E. Hand labor operations
F. None of the Above

Who is Covered by the 2015 WPS?

14. Pesticide handlers: those who mix, load, or apply agricultural pesticides; clean or repair pesticide application equipment; or_____.

A. Application
B. Work
C. Apply
D. Mix, load, or apply agricultural pesticide(s)
E. Assist with the application of pesticides
F. None of the Above

Understanding the Worker Protection Standard?

15. If you are an agricultural pesticide user and/or an employer of agricultural workers or pesticide handlers, the _____ requires you to provide to your employees and, in some cases, to yourself and to others: information about exposure to pesticides, protections against exposures to pesticides, and ways to mitigate exposures to pesticides.

A. AEZ
B. REI
C. WPS
D. EPA
E. OSHA
F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

Topic 3 Common Pesticide Applications and Methods

17 final exam questions. (s) Means answer can be singular or plural.

Hand Operated Sprayers

1. Obtaining uniform coverage of an area is difficult with a hand operated sprayer. The operator must move the nozzle from side to side with _____.

A. Field crops
B. Action thresholds
C. Agriculture industry
D. Any action necessary
E. Compatibility agents
F. None of the Above

2. There are many other types of hand operated sprayers that are not widely used throughout the agriculture industry. Some may be used extensively for the production of_____.

A. Field crops
B. Action thresholds
C. Specific commodities
D. Any action necessary
E. Compatibility agents
F. None of the Above

Boom Sprayers

3. The most common example would be wide horizontal booms used on _____to spray field crops.

A. Motorized sprayers
B. Spray nozzles
C. Wide horizontal booms
D. Field sprayers
E. Airblast sprayers
F. None of the Above

Airblast sprayers

4. In field crops good coverage is relatively easy to achieve where the _____is small and close to the nozzles. In tree fruits, especially with large trees, good coverage with conventional sprayers is more difficult to achieve.

A. Field crops
B. Action thresholds
C. Agriculture industry
D. Target foliage
E. Compatibility agents
F. None of the Above

5. Examples of _____ include Arborchem and kerosene.
A. Insect growth regulator
B. Penetrating Agents
C. Action thresholds
D. Hormonal IGRs
E. Restricted pesticides
F. None of the Above

Insect Growth Regulators
Reduced Risk
6. Many IGRs are labeled "reduced risk" by the Environmental Protection Agency, meaning that they target _____while causing less detrimental effects to beneficial insects.
A. Insect growth regulator
B. Juvenile harmful insect populations
C. Action thresholds
D. Hormonal IGRs
E. Restricted pesticides
F. None of the Above

Hormonal IGRs
7. Hormonal IGRs typically work by mimicking or inhibiting the juvenile hormone (JH), one of the two major hormones involved in insect molting. IGRs can also inhibit the other hormone, ecdysone, large peaks of which trigger the_____.
A. Insect growth regulator
B. Chitin
C. Insect to molt
D. Hormonal IGRs
E. IPM program(s)
F. None of the Above

Hexaflumuron
8. Hexaflumuron (hexaflumeron) is a(n) _____ that interferes with insects' chitin synthesis.
A. Pesticide chemical application
B. Pyrethroid
C. Insect growth regulator
D. Restricted pesticide
E. Organophosphate
F. None of the Above

Diflubenzuron
9. Diflubenzuron is an insecticide of the _____class. It is used in forest management and on field crops to selectively control insect pests.
A. Benzamide
B. Pyrethroid
C. Insect growth regulator
D. Restricted pesticide
E. Organophosphate
F. None of the Above

Pyriproxyfen
10. Pyriproxyfen is a juvenile hormone analogue, preventing larvae from developing into adulthood and thus rendering them unable to reproduce. In the US pyriproxyfen is often marketed under the trade name Nylar. In Europe _____is known under the brand names Cyclio (Virbac) and Exil Flea Free TwinSpot (Emax).
A. Benzamide
B. Pyrethroid
C. Pyriproxyfen
D. Restricted pesticide
E. Organophosphate
F. None of the Above

Methoprene
11. Methoprene is a(n) _____ with activity against a variety of insect species including horn flies, mosquitoes, beetles, tobacco moths, sciarid flies, fleas (eggs and larvae), fire ants, pharaoh ants, midge flies and Indian meal moths.
A. Insect growth regulator
B. Chitin
C. Benzoyl-phenylurea termiticide
D. Hormonal IGRs
E. Benzamide
F. None of the Above

IPM Methods (Types of Pest Control)

12. IPM is not a single pest control method but, rather, a series of pest management evaluations, decisions and controls. In practicing IPM, growers who are aware of the potential for pest infestation follow _____approach.

A. Pesticide chemical application(s)
B. Pyrethroids
C. An insect growth regulator
D. Restricted pesticides
E. Organophosphates
F. None of the Above

Activity of Adjuvants

13. Adjuvants, or additive compounds, aid in the mixing, application or effectiveness of pesticides. One class of adjuvants, _____, allow(s) uniform mixing of compounds that would normally separate. Other types of adjuvants include spreaders, stickers, and synergists.

A. Restricted pesticides
B. Action thresholds
C. Agriculture industry
D. Pesticide chemical application(s)
E. Compatibility agents
F. None of the Above

Knowledge of Labeling Information

14. A _____must assure that handlers understand all of the labeling requirements related to safe use of pesticides before any handling activity takes place. The handler must also have access to the product labeling information during handling activities.

A. Handler(s)
B. Agricultural employer(s)
C. Handler employer
D. Early-entry workers
E. Worker(s)
F. None of the Above

What Information Must Be Displayed? – *Found in Topic 4 Section*

15. The following three types of information must be displayed at a central location before a pesticide is applied: Pesticide-specific application information, which must include: the location and description of the area to be treated, product name, EPA registration number, and_____, time and date the pesticide is scheduled to be applied, and restricted-entry interval for the pesticide.

A. WPS safety poster
B. Decontamination supplies
C. Restrictions
D. Pesticide-specific application information
E. Personal protective equipment (PPE)
F. None of the Above

16. The WPS requires that decontamination supplies be provided regardless of the _____. There is no exemption for employers with only a few employees.

A. WPS safety poster
B. Decontamination supplies
C. Restrictions
D. Pesticide-specific application information
E. Personal protective equipment (PPE)
F. None of the Above

17. Decontamination and emergency eyeflush water must, at all times when it is available to_____, be of a quality and temperature that will not cause illness or injury when it contacts the skin or eyes or if it is swallowed.

A. Handler(s)
B. Workers or handlers
C. Handler employer
D. Early-entry workers
E. Worker(s)
F. None of the Above

Topic 4 - Decontamination and Emergency Requirements

14 final exam questions. (s) Means answer can be singular or plural.

Decontamination Supply Requirements

1. Employers must make sure to provide handlers with decontamination supplies for _____and pesticide residues while they are performing handling tasks and to workers who are in a pesticide-treated area and are performing tasks that involve contact with anything that has been treated with pesticides, including soil, water, or plant surfaces.

A. Washing off pesticides
B. Work
C. Apply
D. Mix, load, or apply agricultural pesticide(s)
E. Tasks related to growing
F. None of the Above

2. The WPS requires that _____ be provided regardless of the number of employees. Whenever provided to workers or handlers, decontamination and emergency eye-flush water must, at all times, be of a quality and temperature that will not cause illness or injury if it comes in contact with the skin or eyes or if it is swallowed.

A. PPE
B. Water
C. Emergency Assistance
D. Decontamination supplies
E. Clean clothes
F. None of the Above

Handler Decontamination Supplies

3. Supplies may be in the application area if protected from drift and spray residues. Supplies must include the following: Water—a minimum of _____gallons per handler or a potable source of tap water

A. 1
B. 5
C. 10
D. 2
E. 3
F. None of the Above

4. _____ if the pesticides used require protective eyewear as stated on the label; potable water may be used as eyewash

A. Work Activities
B. Decontamination site
C. Emergency eyewash
D. Permanent decontamination station(s)
E. All permanent mixing/loading sites
F. None of the Above

Notice of Application to Agricultural Employers

5. Prior to applying any pesticide on an agricultural establishment, a handler employer must provide the following information to an agricultural employer or be assured that the agricultural employer is aware of the specific time, date, location, and description of the pesticide-treated area, labeling requirements relating to protection of workers during or after application, product name, the EPA registration number, active ingredients, REI, and_____.

A. Emergency assistance
B. Labeling of the pesticide
C. PPE
D. Requirements in the standard
E. Notification requirements
F. None of the Above

Pesticide Safety Training

6. The minimum pesticide training required, as well as the criteria for qualified trainers, is specified in the standard. _____ who have been trained under 40 Code of Federal Regulations, Part 171 are exempt from this requirement.

A. Worker(s)
B. Handler(s)
C. Agricultural employer
D. Certified handlers and handlers
E. Workers and handlers
F. None of the Above

Restrictions During Application

7. _____handling highly toxic pesticides are monitored visually or by voice communication at least every 2 hours.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Workers and handlers
E. Employe(es)
F. None of the Above

Notice of Application to Agricultural Employers

8. Prior to applying any pesticide on an agricultural establishment, a handler employer must provide the following information to an agricultural employer or be assured that the agricultural employer is aware of the specific time, date, location, and description of_____ , labeling requirements relating to protection of workers during or after application, product name, the EPA registration number, active ingredients, REI, and notification requirements.

A. The pesticide-treated area
B. Labeling of the pesticide
C. PPE
D. Requirements in the standard
E. Mitigating exposure(s)
F. None of the Above

Pesticide Safety Training

9. If there is reason to believe that a(n) _____ has been poisoned or injured by a pesticide exposure, you must provide prompt transportation to an emergency medical facility.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Workers and handlers
E. Employee
F. None of the Above

Minimum Protection

10. A minimum protection in the _____ is the ability of farmworkers across the country to obtain information they need for medical treatment, workers' compensation or to exercise their legal rights by having designated representatives request information on their behalf about the pesticides to which they are exposed while working.

A. Right(s)
B. Standards
C. Relevant exposure
D. Circumstances of the exposure
E. Chemical injuries and skin disorders
F. None of the Above

Employee Rights:

11. To personally receive _____about pesticides to which he or she may be exposed.

A. Right(s)
B. Information
C. Relevant exposure
D. Circumstances of the exposure
E. Chemical injuries and skin disorders
F. None of the Above

Entry Restrictions in the Treated Area

12. The restricted-entry interval (REI) begins immediately after the pesticide application is complete. During the REI, no worker is allowed to enter the entry-restricted area except under very limited conditions: No early-entry by any worker is allowed until: At least _____ hours after the application is complete.

A. 72
B. 4
C. 24
D. 1
E. 48
F. None of the Above

Application Exclusion Zone (AEZ)

13. As of January _____, all outdoor applications will have an "application exclusion zone" of 0 – 100 feet. The size of the zone depends on the type of application equipment used. The application exclusion zone extends beyond the treatment area. Applicators will be required to stop the application if anyone enters the exclusion zone.

A. 2015
B. 2016
C. 2017
D. 2018
E. 2005
F. None of the Above

Entry Restrictions

14. Only properly trained pesticide handlers who are wearing the required PPE may be in the _____ area during the application.

A. Entry restricted/treated
B. No Contact
C. Short-term
D. No entry
E. No exemption
F. None of the Above

Topic 5 Personal Protection Equipment, Safety, Health Section

15 final exam questions. (s) Means answer can be singular or plural.

Personal Protective Equipment (PPE)

1. One of the changes that happened as a direct result of implementing the WPS regulation is that protective clothing requirements are more clearly and completely listed on product labels. Each product label should list the _____ to be worn when the product is being used or when the potential for exposure to the product exists.

A. Coveralls
B. Rainsuit
C. Chemical-resistant clothing
D. Clean change of Clothes
E. Specific PPE
F. None of the Above

2. _____must supply handlers with personal protective equipment (PPE) as required by the pesticide label. All PPE should be stored in an area separate from pesticides.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Workers and handlers
E. Employe(es)
F. None of the Above

3. PPE should be well maintained, frequently cleaned, and checked for wear. Employers are responsible for making sure handlers wear the_____.

A. Coveralls
B. Rainsuit
C. Chemical-resistant clothing
D. Clean change of Clothes
E. Proper PPE
F. None of the Above

Application Exclusion Zone" or AEZ

4. The "Application Exclusion Zone" or AEZ is a new term used in the _____ rule and refers to the area surrounding the pesticide application equipment that must be free of all persons other than appropriately trained and equipped handlers during pesticide applications.

A. AEZ
B. REI
C. WPS
D. EPA
E. OSHA
F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

How is the AEZ measured and the size of the AEZ determined?

5. The AEZ is measured from the application equipment. The AEZ also moves with the application equipment like a halo around the_____.

A. No responsibilitie(s)
B. Applicable AEZ distance(s)
C. AEZ
D. Application equipment
E. Planting medium
F. None of the Above

6. Does the new WPS requirements related to the AEZ apply to the agricultural employer or the handler making the application. There are several different requirements regarding the AEZ in the_____ . First, the WPS provision at 170.405(a)(1) establishes the applicable AEZ distances.

A. No responsibilitie(s)
B. Applicable AEZ distance(s)
C. Revised WPS
D. Halo around the application equipment
E. Planting medium
F. None of the Above

7. The requirement for the agricultural employer to keep persons out of the _____ only applies within the boundaries of the establishment because the agricultural employer cannot be expected to control persons off the establishment.

A. AEZ D. EPA
B. REI E. OSHA
C. WPS F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

8. Does the agricultural employer have WPS responsibilities related to the new AEZ requirements if workers or other persons are off his/her establishment? The AEZ requirement at §170.405(a) imposes no responsibilities on an agricultural employer in regard to workers or other persons who are not on the _____ as long as the agricultural employer is not the pesticide applicator.

A. No responsibilitie(s) D. Halo around the application equipment
B. Applicable AEZ distance(s) E. Planting medium
C. Agricultural establishment F. None of the Above

9. If the agricultural employer is also the handler making the pesticide application, then §170.505 would require him/her to suspend a pesticide application if any worker or other person is within the AEZ beyond the boundary of the_____.

A. Agricultural employer D. Pesticide application
B. AEZ E. Pesticide applicator
C. Agricultural establishment F. None of the Above

10. What are the applicator's/pesticide handler's responsibilities related to the pesticide applications and the new AEZ requirements, and when does this requirement go into effect? Starting January 2, 2018, the handler performing the application must immediately suspend the pesticide application if_____ , other than an appropriately trained and equipped handler involved in the application, is in the AEZ, regardless of whether such persons are on or off the establishment.

A. Agricultural employer D. Pesticide application
B. AEZ E. Pesticide applicator
C. Any worker or other person F. None of the Above

11. It is important to note that this answer only applies in regard to workers and other persons beyond the boundaries of the establishment; if a handler were to resume an application while workers or other persons on the establishment are still within the _____, that would give rise to a violation of § 170.405.

A. Agricultural employer D. Pesticide application
B. AEZ E. Pesticide applicator
C. Establishment F. None of the Above

Prevention, Recognition, First Aid Treatment of Heat-Related Illness
Heat-Related Illnesses and First Aid

12. _____, the most serious form of heat-related illness, happens when the body becomes unable to regulate its core temperature. Sweating stops and the body can no longer rid itself of excess heat. Signs include confusion, loss of consciousness, and seizures.

A. Tired muscles D. Heat exhaustion
B. Heat stroke E. Heat cramps
C. Heat rash F. None of the Above

13. _____ is the body's response to loss of water and salt from heavy sweating. Signs include headache, nausea, dizziness, weakness, irritability, thirst, and heavy sweating.

A. Tired muscles D. Heat exhaustion
B. Heat stroke E. Heat cramps
C. Heat rash F. None of the Above

Why Rinse Pesticide Containers?

14. Rinsate from the containers, when added directly into the sprayer tank, efficiently and economically uses all pesticide in the container. This eliminates the need to store and later dispose of the _____.

A. Triple punched
B. Properly rinsed
C. Pesticide containers
D. Rinsate
E. Rinsate storage, and pesticide wastes
F. None of the Above

Rinsing Helps Protect the Environment

15. Both federal and state laws require rinsing. Landfill operators and recyclers can only accept properly_____. Pesticide containers should only be offered to recycling projects designed for pesticide containers and not general plastic and metal recycling programs. Pesticide container recycling project personnel will inspect containers to determine if they have been properly rinsed.

A. Triple punched
B. Properly rinsed
C. Rinsed containers
D. Dispose of the rinsate
E. Rinsate storage, and pesticide wastes
F. None of the Above

Topic 6 Personal Protective Equipment Section

15 final exam questions. (s) Means answer can be singular or plural.

Worker Training 2018

1. The pesticide safety training for _____ under the revised WPS (subparts D, E, F and G of 40 CFR Part 170) must be presented either orally from written materials or audio-visually, at a location that is reasonably free from distraction and conducive to training.

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Hired workers and handlers
E. Hand labor operations
F. None of the Above

2. How to recognize and understand the meaning of the posted warning signs used for notifying workers of restrictions on entering_____.

A. Work Activities
B. Pesticide treated areas on the establishment
C. Pesticide(s)
D. Pesticide application
E. Potential hazards from exposure
F. None of the Above

3. Where and in what forms pesticides may be encountered during work activities, and _____ on the agricultural establishment. This includes exposure to pesticide residues that may be on or in plants, soil, tractors, application and chemigation equipment, or used personal protective equipment, and that pesticides may drift through the air from nearby applications or be in irrigation water.

A. Potential sources of pesticide exposure
B. Toxicity and exposure
C. Pesticide(s)
D. Pesticide application
E. Pesticide applicator
F. None of the Above

4. Potential hazards from toxicity and _____that pesticides present to workers and their families, including acute and chronic effects, delayed effects, and sensitization.

A. Work Activities
B. Pesticide applicator
C. Pesticide(s)
D. Pesticide application
E. Exposure
F. None of the Above

Decontamination Supplies

5. 1 gallon of water per worker and _____ gallons of water per handler at the beginning of each work period for routine and emergency decontamination,

A. 100
B. 2
C. 3
D. 5
E. 10
F. None of the Above

6. Provide _____with decontamination supplies where personal protective equipment (PPE)
is removed at the end of a task. 170.509 (a)

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Hired workers and handlers
E. Hand labor operations
F. None of the Above

7. Provide_____ with decontamination supplies at each mixing and loading site. 170.509 (c)(1)

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Workers and handlers
E. Employe(es)
F. None of the Above

8. For handlers, decontamination supplies must be kept outside the treated area, or any area under a(n) _____, unless they are protected from contamination in closed containers. 170.509 (c)(1)&(3)

A. AEZ
B. REI
C. WPS
D. EPA
E. OSHA
F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

Emergency Assistance

9. If there is reason to believe a worker or handler has been exposed to pesticides, during or within _____ hours of employment, and needs emergency medical treatment, employers must do the following: Promptly make transportation available to an appropriate emergency medical facility.

A. 72
B. 4
C. 24
D. 1
E. 48
F. None of the Above

Labeling Information Section

10. A handler employer must assure that handlers understand all of the labeling requirements related to safe use of pesticides before any handling activity takes place. The handler must also have access to the _____ during handling activities.

A. Emergency assistance
B. Labeling of the pesticide
C. PPE
D. Product labeling information
E. Mitigating exposure(s)
F. None of the Above

Safe Operation of Equipment

11. A handler employer must assure that handlers are instructed in the safe operation of all equipment they will be using. It is the handler-employer's responsibility to assure that the equipment is working properly and to inform employees, when appropriate, that the equipment may be contaminated with pesticides and to explain the correct way to handle such_____.

A. Requirement(s)
B. Emergency assistance
C. Equipment
D. Appropriate measure(s)
E. Safe operation
F. None of the Above

Decontamination

12. A handler employer must provide a decontamination site (as specified in the standard) for washing off pesticides and pesticide residues during any_____ activity.

A. Work
B. Pesticide application
C. Handling
D. Pesticides and pesticide residues
E. Potential hazards from toxicity and exposure
F. None of the Above

Emergency Assistance

13. A handler employer must provide the _____ to handlers as discussed for workers.

A. Requirement(s)
B. Same emergency assistance
C. Information exchange(s)
D. Appropriate measure(s)
E. Safe operation
F. None of the Above

Label Requirements

14. When these requirements appear on pesticide labels, all end-users must meet them unless exempt. Exempt end-users should voluntarily obey the _____ because of the dangers of pesticide exposure.

A. Requirement(s)
B. Emergency assistance
C. Information exchange(s)
D. Appropriate measure(s)
E. Safe operation
F. None of the Above

15. A display of information at a central location (WPS safety poster, the location of emergency medical facilities, and_____).

A. Requirement(s)
B. Emergency assistance
C. Information exchange(s)
D. Appropriate measure(s)
E. A list of recent pesticide applications
F. None of the Above

Topic 7 Beneficial Insect Identification

18 final exam questions. (s) Means answer can be singular or plural.

Mealybug Destroyers

1. Both the larvae and adults of this lady beetle feed on mealybugs. They may also feed on aphids and immature scale insects. Each adult female lays hundreds of eggs in mealybug egg masses. When the beetle larvae hatch, they feed on _____.

A. Scale insects or spider mites
B. White silken cocoons of parasites
C. Restriction of the colony
D. Spider mites, thrips, and their eggs
E. Immature mealybugs
F. None of the Above

Ground Beetles

2. While _____may vary widely, they are usually shiny. Black is a common color, sometimes with a metallic sheen of another color on their wing covers. Most ground beetles feed at night and hide in the soil or under debris during the day.

A. A starch in their saliva
B. Chagas disease
C. Shapes and colors
D. Yellowish to creamy
E. Very sensitive to touch
F. None of the Above

Lady Beetles

3. Lady beetles that feed on scale insects or spider mites do not lay their eggs in masses. Instead, eggs are laid singly on leaves or_____. Most lady beetle larvae are elongated in form and slightly pointed at the rear.

A. Under the cover of the scale insect
B. White silken cocoons of parasites
C. Restriction of the colony
D. Spider mites, thrips, and their eggs
E. Nectar- or pollen-producing plants
F. None of the Above

Rove Beetles

4. They are _____and measure 1/10 to one inch long. Depending upon species, rove beetles prey upon aphids, springtails, mites, nematodes, slugs, snails, fly eggs and maggots. They also eat and help break down decaying organic material.

A. Slow moving
B. Fast moving
C. Small
D. Yellowish to creamy
E. Very sensitive to touch
F. None of the Above

Soldier Beetle

5. The adults are_____. They supplement their diet with nectar and pollen and can be minor pollinators. Soldier beetle populations can be increased by planting good nectar- or pollen-producing plants such as Asclepias or Solidago.

A. Similar to scale insects or spider mites
B. White silken cocoons of parasites
C. Part of the colony
D. Very sensitive to touch
E. Especially important predators of aphids
F. None of the Above

Assassin Bug

6. Some blood-sucking species, particularly Triatoma spp. and other members of the subfamily Triatominae (e.g., Paratriatoma hirsuta), are also known as kissing bugs due to their habit of biting humans in their sleep on the soft tissue of the lips and eyes; a number of these haematophagous species, located in Central and South America, are able to _____.

A. Have a starch in their saliva
B. Transmit venereal disease
C. Eat bananas
D. Emit a yellowish to creamy ice cream flavor
E. Kiss people
F. None of the Above

Minute Pirate Bug

7. Adults are 2–5 mm long and feed mostly on _____, but will also feed on pollen and vascular sap. These predators are common in gardens and landscapes. They have a fairly painful bite, but are not poisonous.

A. Scale insects or spider mites
B. White silken cocoons of parasites
C. Aphid lions
D. Spider mites, thrips, and their eggs
E. Nectar- or pollen-producing plants
F. None of the Above

Green Lacewings

8. They are voracious predators, attacking most insects of suitable size, especially soft-bodied ones (aphids, caterpillars and other insect larvae, insect eggs, and at high population densities also each other). Therefore, the larvae are colloquially known as "aphid lions" (also spelled "aphidlions") or "_____", similar to the related antlions. Their senses are weakly developed, except that they are very sensitive to touch.

A. Scale insects
B. Parasites
C. Aphid wolves
D. Ant tigers
E. Green monsters
F. None of the Above

Syrphid flies -Hoverflies

9. Hoverflies, sometimes called flower flies or syrphid flies, make up the insect family Syrphidae. As their common name suggests, they are often seen hovering or nectaring at flowers; the adults of many species feed mainly on nectar and pollen, while the larvae (maggots) eat_____.

A. Scale insects or spider mites
B. Other parasites
C. A wide range of foods
D. Spider mites, thrips, and their eggs
E. Nectar- or pollen-producing plants
F. None of the Above

Parasitic Wasps

10. Females of many species have a spine-like egg-laying structure (ovipositor) at the tip of the abdomen. Larval stages are usually not observed unless they are dissected from hosts (internal parasites) or_____.

A. Omit a starch in their saliva
B. Present Chagas disease
C. Detected on the host (external parasites)
D. Are yellowish to creamy
E. Are very sensitive to touch
F. None of the Above

Bald-faced Hornet

11. Every year, queens that were born and fertilized at the end of the previous season begin a new colony. The _____ selects a location for its nest, begins building it, lays a first batch of eggs and feeds this first group of larvae.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Queen(s)
D. Larvae(s)
E. Honey bee(s)
F. None of the Above

Honey Bees Apidae Family of Insects

12. Currently, there are only seven recognized species of _____ with a total of 44 subspecies, though historically, anywhere from six to eleven species have been recognized.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

Bumble Bee

13. Bumble bees form colonies. These colonies are usually much less extensive than those of honey bees. This is due to a number of factors including the small physical size of the nest cavity, the responsibility of a _____for the initial construction and reproduction that happens within the nest, and the restriction of the colony to a single season (in most species).

A. Single female
B. Mason bee(s)
C. Queen(s)
D. Larvae(s)
E. Honey bee(s)
F. None of the Above

Mason Bee

14. Smaller than a _____, mason bees resemble house flies more than honey bees. They are deep blue-black in color and have no stripes. Mason bees are native to North America. They are active pollinators between cherry blossom and apple blossom season, and then die out by summer.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

15. Attract _____ by providing them a home. Drill holes exactly 5/16-inch in diameter into wooden blocks and mount the blocks by cherry blossom season facing morning sun.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

Cuckoo Bee

16. Cuckoo Bees are parasites, in that the female cuckoo bee lays her eggs in the nest of other bees, primarily_____.

A. Digger bees and Andrenids
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

Centipede

17. Centipedes are predators, and mainly use their antennae to seek out their prey. The digestive tract forms a simple tube, with digestive glands attached to the mouthparts. Like insects, centipedes breathe through a tracheal system, typically with a single opening, or spiracle on each body segment. They excrete waste through _____

A. Scopa
B. Involucrum
C. Rectum
D. A single pair of malpighian tubules.
E. A starch in their saliva
F. None of the Above

Tachnid Flies

18. Adult flies feed on flowers and nectar from aphids and scale insects. As many species typically feed on pollen, they can be important pollinators of some plants, especially at higher elevations in mountains where bees are relatively few. The taxonomy of this family presents many difficulties.

A. Scopa
B. Involucrum
C. Number of factors
D. Morphological characters of the adult flies
E. Starch in their saliva
F. None of the Above

Topic 8 Honey Bee Detailed Section Post Exam

Biology and Habits of the Honey Bee

1. The honey bee undergoes complete metamorphosis, passing through four stages: egg, larva, pupa, and adult. Bees develop into three different castes:_____, queens, and drones.

A. Pupa
B. Soldiers(s)
C. Virgin queen(s)
D. Scout bees
E. Workers
F. None of the Above

2. Developmental time and longevity vary with each caste and among races. When honey bees emerge as adults, they continue to develop. At first their body is soft, but the cuticle hardens in about 12-24 hours. During the next few days, glands and reproductive organs (in the_____) develop and mature.

A. Drones
B. Queen(s)
C. Virgin queen(s)
D. Scout bees
E. Queens and drones
F. None of the Above

3. _____ produce semen in about 12 days and queens begin to lay eggs about three days after mating. In a typical colony there will be only one laying queen, about 100 – 300 drones, and about 20,000 - 60,000 workers.

A. Drones
B. Kings(s)
C. Soldiers(s)
D. Scout bees
E. Each caste and among races
F. None of the Above

Virgin Queens

4. When mature, virgin queens take a mating flight and mate with 10-15 _____. In about three days the queen begins to lay eggs.

A. Drones
B. Queen(s)
C. Virgin queen(s)
D. Scout bees
E. Workers
F. None of the Above

5. _____may lay as many as 1,500 eggs in a single day and around 200,000 eggs in a year. The queen controls whether or not the eggs are fertilized, using sperm stored in her spermatheca.

A. Drones
B. A queen
C. Virgin queen(s)
D. Scout bees
E. Each caste and among races
F. None of the Above

The Domicile

6. The AHB swarms much more frequently than other honey bees. A colony is a group of bees with comb and brood. _____may either be managed (white hive boxes maintained by professional beekeepers) or wild (feral).

A. The AHB swarms
B. Swarm
C. The colony
D. Swirling mass of flying bees
E. Brood
F. None of the Above

7. A group of bees that are in the process of leaving their parent colony and starting a nest in a new location is called a "_____." Usually a new queen is reared to stay with the parent colony and the old queen flies off with the swarm.

A. AHB swarms
B. Swarm
C. Scout bee(s)
D. Swirling mass of flying bees
E. Brood
F. None of the Above

8. _____ often locate potential nest sites prior to swarming, but the swarm may spend a day or two clustered in impressive, hanging clumps on branches or in other temporary locations until the bees settle on a new nesting site. If they can't find a suitable location, the bees may fly several miles and cluster again.

A. The AHB swarms
B. Swarm
C. Scout bee(s)
D. Swirling mass of flying bees
E. Drones
F. None of the Above

9. When the swarm emerges from its domicile and settles in a cluster on a tree, certain "_____" communicate to it the availability of other domiciles. At least some of these domiciles may have been located by the scout bees before the swarm emerged.

A. Drones
B. Queen(s)
C. Virgin queen(s)
D. Scout bees
E. Each caste and among races
F. None of the Above

10. Pyrethrins are_____**.** Pyrethrins, bee killers derived from the flowers of the chrysanthemum, work quite well as a spray for controlling bee populations. Pyrethrins are not generally used to destroy entire bee colonies. Instead, as they only kill the bees that get sprayed directly, pyrethrins are usually just used to keep populations from getting too out of hand. Microcare Aerosol is a good brand.

A. Another natural bee pesticide
B. Hazardous
C. Used for bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

Topic 9 Africanized Honey Bee Section Post Exam

Apis mellifera

1. Africanized bees are simply a strain of _____, the same species introduced from Europe that produces our honey and pollinates many of our plants. An African strain was introduced to South America in an effort to produce a bee better suited to the tropics.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

2. African bees were brought to Brazil in 1956 by biologists wanting to create an _____that would perform well in the South American climate. But in 1957, measures to contain the colonies were accidentally removed and several swarmed into the countryside.

A. African/European hybrid
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Venezuelans

3. Beekeepers learned to take proper precautions and Venezuelans became familiar with potential dangers. _____ are a real and significant threat for those who must live with them, but they can be dealt with as long as the appropriate precautions and control measures are taken.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Summary

4. Africanized honey bees (Apis mellifera scutellata) and European honey bees (Apis m. mellifera) are the same species - they look the same, sting in defense of themselves or their nest, can only sting once, and have the same venom. _____ are slightly smaller (but because the bees look so much alike only a laboratory analysis can tell them apart).

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

5. The Africanized honey bee is simply a hybrid honey bee, a result of breeding the European honey bee, Apis mellifera mellifera, with the African honey bee, Apis mellifera scutellata. The genetic differences in the hybrid Africanized bee make its habits different from those of the _____cultured in the United States.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Domestic European honey bee
E. An African strain
F. None of the Above

Barbed Stingers

6. _____workers have barbed stingers. When either type of bee stings a human, it leaves both the stinger and tiny, attached venom sac. This causes the bee to die soon after. If you are stung, simply scrape the stinger out to remove it.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. European and Africanized
F. None of the Above

Excessive Swarming

7. The AHB will swarm more frequently than the EHB. Typically, an EHB colony swarms once every year or two; an AHB colony may swarm 4-8 times a year. Generally, an _____ swarm is much smaller than an EHB swarm; some aren't much larger than a coffee cup.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Reproductive Capacity

8. Compared with the EHB, the AHB devotes a greater percentage of its nest to brood production and less to honey storage. Because the developmental period of the _____ is shorter than that of the EHB, it's able to produce more bees in less time.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Mating Advantage

9. An AHB colony produces more drones than an EHB colony of equal size. In areas where the AHB has become established, the _____ queens appear to mate with AHB drones at a much higher frequency than with EHB drones.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Identification

10. Identifying the _____is very difficult. The characteristics used for identification differ only slightly and overlap considerably among individuals. Accurate identification is not only difficult but time-consuming and expensive.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Topic 10 Modern European Bee Hive Section Post Exam

Bee Pollen

1. Bee pollen is the male seed of a flower blossom which has been gathered by the bees and to which special elements from the bees has been added. The honeybee collects _____and mixes it with its own digestive enzymes.

A. Nectar
D. Pollen
B. Propolis
E. Temperate propolis and tropical propolis
C. Honey
F. None of the Above

2. _____contains from one hundred thousand to five million pollen spores each capable of reproducing its entire species.

A. Propolis
D. Male seed of a flower blossom
B. Sources of resin
E. One pollen granule
C. Nectar
F. None of the Above

3. _____is a wax-like, resinous substance that bees collect from tree buds, or other botanical sources, and use as a sealant for unwanted open spaces in the hive.

A. Nectar
D. Digestive enzymes
B. Propolis
E. Temperate propolis and tropical propolis
C. Honey
F. None of the Above

4. Bees usually carry _____ out of and away from the hive. However if a small lizard or mouse, for example, found its way into the hive and died there, bees could be unable to carry it out through the hive entrance. In that case, they would attempt instead to seal the carcass in propolis, essentially mummifying it and making it odorless and harmless.

A. Propolis
D. Male seed of a flower blossom
B. Sources of resin
E. Pollen
C. Nectar
F. None of the Above

Composition of Propolis

5. The composition of propolis will vary from hive to hive, district to district, and from season to season. Normally it is dark brown in color, but it can be found in green, red, black and white hues, depending on the sources of resin found in the particular hive area. Bees are opportunists, and will gather what they need from_____.

A. Nectar
D. Available sources
B. Propolis
E. Temperate propolis and tropical propolis
C. Honey
F. None of the Above

6. The source of propolis varies in a major way with latitude. In temperate climates bees collect resins from trees, mostly poplars and to lesser extent conifers. The biological role of propolis in trees is to seal wounds and defend against_____. In tropical regions, bees gather propolis from flowers, especially Clusia, that have adapted propolis to attract pollinators.

A. Propolis
D. Bacteria, fungi and insects
B. Sources of resin
E. Pollen
C. Nectar
F. None of the Above

7. The chemical composition of _____ are different. Poplar propolis is rich in flavanoids. Clusia propolis contains polyprenylated benzophenones.

A. Nectar
D. Digestive enzymes
B. Propolis
E. Temperate propolis and tropical propolis
C. Honey
F. None of the Above

8. "Typical" propolis has approximately 50 constituents, primarily resins and vegetable balsams (50%), waxes (30%), essential oils (10%), and pollen (5%). _____ is sticky at and above room temperature. At lower temperatures it becomes hard and very brittle.

A. Propolis
B. Sources of resin
C. Nectar
D. Male seed of a flower blossom
E. Pollen
F. None of the Above

9. Bees actually have two stomachs, their honey stomach which they use like a _____ backpack and their regular stomach.

A. Nectar
B. Propolis
C. Honey
D. Digestive enzymes
E. Temperate propolis and tropical propolis
F. None of the Above

10. The honey stomach holds almost 70 mg of nectar and when full, it weighs almost as much as the bee does. Honeybees must visit between 100 and 1500 flowers in order to fill their _____stomachs.

A. Propolis
B. Sources of resin
C. Nectar
D. Honey
E. Pollen
F. None of the Above

Topic 11 Bee Control Section Post Exam

General Bee Control and Treatments

1. In some cases, attempting to destroy a nest becomes a greater health risk than simply tolerating and avoiding it. However, nests, especially those of social species, should be destroyed if they are close enough to humans to pose a _____.

A. Nest(s)
B. Thousand bees
C. Hazard
D. First males
E. Stinging threat
F. None of the Above

2. The nests of honey bees, bumble bees, yellowjackets and hornets should always be approached with caution, preferably at night when most of the workers are present but reluctant to fly. Try not to carry a light, as wasps and bees may fly toward it. Instead, set the light aside or cover it with red cellophane (insects cannot see red light). If there is direct access to the nest, a fast-acting dust or wettable powder formulation can be applied. If possible, inject the material into the _____.

A. Nest(s)
B. Thousand bees
C. Net
D. Hole
E. Crack
F. None of the Above

3. If you must approach these nests during daytime, _____ can be used to keep the bees/wasps at bay, while you treat the nest as above. Heavy clothing or a “bee suit” can be worn for added protection.

A. Odor
B. Bear
C. Dusting device
D. Heat spray
E. An application
F. None of the Above

Mechanical Control Remove bees from the house with a vacuum cleaner

4. Unless you have a thousand bees swarming your face, the _____is a great way to get rid of bee pests that are in the house. Simply use the hose attachment and suck them into oblivion.

A. Smoke
B. Vacuum cleaner
C. Dusting device
D. Heat spray
E. An application
F. None of the Above

Specific Bee Treatments

5. Certain _____are harmful to bees. That's why we require instructions for protecting bees on the labels of pesticides that are known to be particularly harmful to bees. This is one of many reasons why everyone must read and follow pesticide label instructions.

A. Smoke
B. Vacuum cleaner
C. Dusting device
D. Heat spray
E. Pesticides
F. None of the Above

Application of Pest Products

6. When a _____is completely filled to its capacity, or when dust is packed down inside the duster, dust does not come out in proper form.

A. Hand bellows duster
B. Vacuum cleaner
C. Dusting device
D. Back pack
E. Bee kill machine
F. None of the Above

Aldicarb

7. Aldicarb is a carbamate insecticide which is the active substance in the pesticide _____. It is effective against thrips, aphids, spider mites, lygus, fleahoppers, and leafminers, but is primarily used as a nematicide.

A. Four stereoisomers
B. An enzyme
C. Insecticidal concentrations
D. An insecticide and as molluscicide
E. Nicotine-based, systemic insecticide
F. None of the Above

Carbofuran

8. It is_____, which means that the plant absorbs it through the roots, and from here the plant distributes it throughout its organs where insecticidal concentrations are attained. Carbofuran also has contact activity against pests.

A. Four stereoisomers
B. An enzyme
C. Insecticidal concentrations
D. An insecticide and as molluscicide
E. A systemic insecticide
F. None of the Above

Diazinon

9. Diazinon kills insects by_____, an enzyme necessary for proper nervous system function. Diazinon has a low persistence in soil. The half-life is 2 to 6 weeks. The symptoms associated with diazinon poisoning in humans include weakness, headaches, tightness in the chest, blurred vision, nonreactive pinpoint pupils, excessive salivation, sweating, nausea, vomiting, diarrhea, abdominal cramps, and slurred speech.

A. Four stereoisomers
B. Inhibiting acetylcholinesterase
C. Insecticidal concentrations
D. An insecticide and as molluscicide
E. Nicotine-based, systemic insecticide
F. None of the Above

Imidacloprid

10. Imidacloprid is a nicotine-based, systemic insecticide, which acts as a neurotoxin and belongs to a class of chemicals called the_____.

A. Four stereoisomers
B. Neonicotinoids
C. Insecticidal concentrations
D. Molluscicide
E. Nicotine-based, systemic insecticide
F. None of the Above

Malathion

11. Malathion is a pesticide that is widely used in agriculture, residential landscaping, public recreation areas, and in public health pest control programs such as mosquito eradication. In the US, it is the most commonly used_____.

A. Four stereoisomers
B. Organophosphate insecticide
C. Insecticidal concentrations
D. Bird repellent
E. Nicotine-based, systemic insecticide
F. None of the Above

Methiocarb

12. Methiocarb is a chemical mainly used as a bird repellent, as an insecticide and as molluscicide. It is toxic to humans, not listed as_____, is toxic to reproductive organs, and a potent neurotoxin.

A. Four stereoisomers
B. An enzyme
C. Insecticidal concentrations
D. A carcinogen
E. Nicotine-based, systemic insecticide
F. None of the Above

Permethrin
General Information

13. Permethrin is_____. It is available in dusts, emulsifiable concentrates, smokes, ULV concentrates, and wettable-powder formulations.

A. Four stereoisomers
B. A broad-spectrum pyrethroid insecticide
C. Insecticidal concentrations
D. An insecticide
E. Systemic insecticide
F. None of the Above

Resmethrin

14. Resmethrin is _____with many uses, including control of the adult mosquito population. The resmethrin molecule has four stereoisomers determined by cis-trans orientation around a carbon triangle and chirality.

A. Four stereoisomer
B. An enzyme
C. Insecticidal spray
D. An insecticide
E. A pyrethroid insecticide
F. None of the Above

Colony cycle

15. Early in the colony cycle, the queen bumble bee compensates for potential reproductive competition from workers by suppressing _____by way of physical aggression and pheromonal signals. Thus, the queen will usually be the mother of all of the first males laid.

A. Their egg-laying
B. Pollen collecting
C. Honey production
D. The first males
E. Stinging threat
F. None of the Above

Topic 12 Bee-Related Inspections Section Post Exam

1. Bees, hives, frames, etc., must be handled by the beekeeper, an accompanying state apiarist, or an inspector with knowledge of bee colonies and/or beekeeping training. _____should be properly dressed with bee protective clothing/attire to minimize the risk of bee stings regardless of whether they personally handle a hive.

A. Beekeepers
B. Workers
C. Employees
D. Honey production handlers
E. Inspectors
F. None of the Above

2. To determine how a bee hive or colony was exposed to _____, the inspector must rely on additional observations or sample collection from the hive, the site where the bees died, areas adjacent to the bee hive, etc.

A. Chance of vandalism
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

3. _____should be collected from fresh honey in the top of the hive and pollen samples should be collected from uncapped (i.e., recently collected) pollen chamber near the brood chamber.

A. Honey samples
B. Brood chamber
C. Pollen
D. Honey production
E. Brood wax
F. None of the Above

4. When sampling pollen and/or honey from comb, care should be taken not to include wax since wax can contain a different spectrum of pesticides than what may actually be present in pollen or honey. _____is generally dark brown to black. Honey wax is pale and light colored.

A. Unique batches
B. Brood chamber
C. Pollen
D. Honey production
E. Brood wax
F. None of the Above

5. Keep in mind that when sampling pollen from the comb, bees do not typically store pollen in_____. Pollen collected from a number of floral sources over time may be stored in the same cell of the comb.

A. Unique batches
B. Brood chamber
C. Pollen
D. Honey production
E. Brood wax
F. None of the Above

6. Prior to conducting an inspection related to bee deaths, the inspector should contact the laboratory that will analyze_____.

A. Any physical samples collected
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

7. _____may be located on wooden pallets to facilitate transport or to ready colonies for deployment to pollination locations; these colonies also tend to be of relatively uniform dimensions in order to facilitate stacking during transport. For colonies involved in honey production, the number of “supers” on the colony is based on the ability of that colony to produce honey.

A. Migratory colonies
B. Brood chamber
C. Pollen
D. Honey production
E. Nutritional and energy needs
F. None of the Above

8. Bee death may also be caused by exposure to pesticides. _____may occur through drift of pesticides from aerial or ground applications immediately adjacent to where colonies are located and/or to areas where bees may be foraging for food and/or water.

A. Chance of vandalism
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. Colony exposure
F. None of the Above

9. While bees will forage to meet the nutritional and energy needs of the colony and typically select forage that represents a preferred source of both pollen and nectar, they may also forage on less preferred sources of _____ based on availability.

A. Beekeeper
B. Brood chamber
C. Pollen
D. Honey production
E. Nutrition and water
F. None of the Above

10. Apiary locations are typically well hidden to limit the _____.

A. Chance of vandalism
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

Topic 13 Wasp Identification

10 final exam questions. (s) Means answer can be singular or plural.

Yellowjackets

1. The Blue Mud Wasp is another solitary wasp less common but present in our area. This wasp seems incapable of building her own mud nest, but is able to repair and use abandoned nests. The _____ is at the top of her menu.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Black Widow spider
E. D. (formerly known as V.) maculata
F. None of the Above

2. The social wasps can be fractured into 2 groups, the Yellowjackets / Hornets and _____.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. D. (formerly known as V.) maculata
F. None of the Above

Yellowjackets

3. These wasps tend to be medium sized and black with jagged bands of bright yellow—or white in the case of the aerial-nesting_____—on the abdomen and have a very short, narrow "waist," the area where the thorax attaches to the abdomen.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Digger bees and Andrenids
E. D. (formerly known as V.) maculata
F. None of the Above

4. V. vulgaris ranges across Canada and the northeastern United States. Common in higher elevations, it nests in shady evergreen forests around parks and camps in the western mountains and the eastern Appalachians. This species also is _____.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. D. (formerly known as V.) maculata
F. None of the Above

Eastern Yellowjacket (Vespula maculifrons)

5. The Eastern yellowjacket sometimes nests in building wall voids. Most yellowjackets have very slightly barbed stingers but the sting will not set in the victim's tissue like the barbed stinger of the honey bee. The stinger of _____, however, often sticks and when the insect is slapped off, the stinger may remain.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Andrenids
E. D. (formerly known as V.) maculata
F. None of the Above

German yellowjacket (Vespula germanica)

6. _____may be active in protected voids into November and December when outside temperatures are not severe.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. Colonies of this yellowjacket
F. None of the Above

Paper Wasp

7. _____gather fibers form old decaying wood or dead, dry plants, chew them up and mix the debris with water to make their grey paper nest. Populations in these nests rarely ever exceed 200.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Wasps
E. D. (formerly known as V.) maculata
F. None of the Above

Yellowjacket Management
Inspection
8. Entrance holes sometimes have bare earth around them. Entrance holes in structures are usually marked by_____. Nests high in trees should not be problems. Be sure to wear a bee suit or tape trouser cuffs tight to shoes.
A. Fast flying workers entering and leaving
B. Bare earth
C. Reddish dust
D. Rapidly lower nest temperature
E. Paralyzed tarantula
F. None of the Above

Pesticide Application
9. When possible, treat ground and aerial nests after dark [Workers are in the nest at that time]. More often than not, because of_____, treatment will be scheduled for the daytime.
A. The dark
B. Bare earth
C. Toxic dust
D. Rapidly lower nest temperature
E. Traditional work schedules
F. None of the Above

Umbrella Wasps (Polistes spp. and Mischocyttarus flavitarsis)
10. Umbrella wasps are also commonly referred to as paper wasps. These wasps have been named _____because their nests are the shape of an inverted umbrella. They usually have small nests and are usually inhabited by about 250 wasps.
A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. Umbrella wasps
F. None of the Above

Topic 14 Common Crop Insects and Pesticide Controls
18 final exam questions. (s) Means answer can be singular or plural.

Cotton Aphid
1. Cotton aphid is_____, and adults may be winged or wingless.
A. Most destructive
B. Controllable
C. Impressive in reproductive capacity
D. Highly variable in body size and color
E. Much more restrictive in their diet choice
F. None of the Above

2. Nymphs and adults of wingless cotton aphids vary in color from yellow to green to nearly black. The darker forms tend to be _____.
A. Most destructive
B. A problem in cool areas
C. Darker
D. Long-lasting protection
E. Substantially larger
F. None of the Above

Green Peach Aphid
3. Green peach aphid feeds on hundreds of host plants in over 40 plant families. However, it is only the viviparous (giving birth to living young) summer stages that _____; the oviparous (egg producing) winter stages are much more restrictive in their diet choice.
A. Most destructive
B. Controllable
C. Impressive in reproductive capacity
D. Highly variable in body size and color
E. Feed so widely
F. None of the Above

Cabbage Looper
4. Cabbage loopers are the most destructive of the cabbageworms. One looper larvae does approximately three times the damage of one imported cabbageworm larvae and can consume almost 20 times as much foliage as a _____.
A. Diamondback Moth Larvae
B. Imported Cabbageworm
C. Colorado Potato Beetle
D. Squash Bug
E. Mexican Bean Beetle
F. None of the Above

Diamondback Moth Larvae

5. Diamondback populations are also sensitive to the weather. Dry weather necessitates higher insecticide rates and scheduling of sprays every 4 days, while heavy downpours can reduce diamond-back moth and larvae populations, decreasing_____. Several Bt formulations can be used on diamondback moths.

A. Rotation
B. The need to apply insecticides
C. Biological controls
D. Skeletonized with a lace-like appearance
E. Deposit brownish-red eggs in clusters
F. None of the Above

Colorado Potato Beetle

6. The voracious appetite and _____of the Colorado potato beetle (CPB) make it an important pest of vegetable crops. Both adults and larvae feed on the leaves. Potato, tomato and related weeds are quickly reduced to stems and skeletonized leaves.

A. Larvae
B. Damage
C. Impressive reproductive capacity
D. Toast
E. The only feasible approach to control
F. None of the Above

Flamer

7. The flamer was used repeatedly on the field edges during the time the overwintering beetles migrate from the edge of the field. One or two passes in the field during that time also controlled overwintering_____. In addition to killing larvae, the flamer reduced egg hatch by 35%.

A. Flamer
B. Beetles
C. Cowpea Curculio
D. European Corn Borer
E. Vetchworm
F. None of the Above

Corn Earworm

8. Corn earworm has a wide host range; hence, it is also known as "tomato fruitworm," "sorghum headworm," "vetchworm," and "_____."

A. Flamer
B. Corn Earworm
C. Cowpea Curculio
D. European Corn Borer
E. Vetchworm
F. None of the Above

Cowpea Curculio

9. Cowpea curculio adults pass the winter in crop refuse or weeds, particularly brown sedge, around previously infested plants. The _____, or weevils, leave their overwintering sites from April through July.

A. Flamer
B. Corn Earworm
C. Cowpea Curculio
D. European Corn Borer
E. Vetchworm
F. None of the Above

10. _____ puncture developing pods with their snouts as they feed. Females lay a single egg in some of the feeding wounds. About 4 days later, brown-headed grubs emerge and infest the seeds of beans and peas.

A. Flamers
B. Corn Earworms
C. Cowpea Curculios
D. European Corn Borers
E. Weevils
F. None of the Above

Flea Beetles

11. Flea beetle attack is sudden and can destroy young plants, so fields should be scouted daily. Three to four generations can be produced annually. _____is effective, since flea beetles migrate in from weedy areas.

A. Killing larvae
B. Damage
C. Spray application
D. Leaving their overwintering sites from April through July
E. The only feasible approach to control
F. None of the Above

Vegetable Leafminers

12. The adults are principally yellow and black in color. The shiny black mesonotum of L. sativae is used to distinguish this fly from the closely related _____, Liriomyza trifolii which has a grayish black mesonotum.

A. Fall Armyworm
B. Flea Beetles
C. American serpentine leafminer
D. Mexican Bean Beetle
E. Tomato caterpillar pests
F. None of the Above

Tomato Fruitworm

13. _____ for the tomato fruitworm include Bt and Trichogramma wasps. Bt must be reapplied after 5 to 7 days.

A. Rotation
B. Elytron
C. Biological controls
D. Skeletonized with a lace-like appearance
E. Deposited brownish-red eggs in clusters
F. None of the Above

14. Trichogramma is a _____which lays its eggs in the eggs of a number of insects, including fruitworms.

A. Parasitic wasp
B. Flea Beetles
C. Vegetable Leafminers
D. Mexican Bean Beetle
E. Tomato caterpillar pests
F. None of the Above

Mexican Bean Beetle

15. Mexican bean beetle adults and _____feed on the undersides of leaves of several plants, including garden beans, cowpeas and soybeans, leaving the leaves skeletonized with a lace-like appearance.

A. Trichogramma
B. Flea Beetles
C. Vegetable Leafminers
D. Larvae
E. Tomato caterpillar pests
F. None of the Above

Pepper Maggot

16. Adult flies are attracted to rotting peppers, so removal of rotting fruit from fields reduces the attractiveness of fields to egg laying flies. Destroy infested fruit and cull piles as they serve as reservoirs for future infestations. Another cultural control is _____.

A. Rotation
B. Elytron
C. Biological controls
D. IPMs
E. IGRs
F. None of the Above

Pickleworm

17. Pickleworm populations can be lowered by planting early, plowing deeply before planting and rotating crops. Chemical control measures must be started as soon as pickleworm adults appear, since insecticides cannot reach _____inside the flower and developing fruit.

A. Pepper Maggot
B. Pickleworm
C. Squash Vine Borer
D. Squash Bug
E. Larvae
F. None of the Above

Sweetpotato Weevil

18. _____are antlike and very small with dark metallic blue heads and wings and reddish orange bodies and legs. Adults and larvae feed on storage roots both before and after harvest.

A. Adult weevils
B. Sweetpotato Weevil
C. Dark-brown click beetle
D. Silverleaf Whitefly
E. Adults and larvae
F. None of the Above

Topic 15 Cotton Insect and Related Pest Identification

4 final exam questions. (s) Means answer can be singular or plural.

Boll Weevil

1. The boll weevil is considered the key pest in cotton production because the insecticides that cotton growers traditionally use early in the season to control weevils also eliminates many _____.

A. Shield bug(s)
B. Soybean looper(s)
C. Larvae(s)
D. Two-spotted spider mite(s)
E. Aphid(s)
F. None of the Above

Cotton Aphids

2. Light _____ populations (20/leaf) on mid-season cotton often do not generate any obvious damage symptoms.

A. Shield bug(s)
B. Soybean looper(s)
C. Larvae(s)
D. Two-spotted spider mite(s)
E. Aphid(s)
F. None of the Above

Beet Armyworm

3. Larvae feed gregariously for several days after hatching. Initially _____ feed from the underside of the leaf but leave the upper clear epidermis of the leaf intact, which results in windowpane-like damaged areas that are often referred to as "hits".

A. Shield bug(s)
B. Soybean looper(s)
C. Larvae(s)
D. Two-spotted spider mite(s)
E. Aphid(s)
F. None of the Above

Spider Mites

4. Two-spotted spider mite is one of the more common of several species of mites that attack cotton. _____are not insects, but are closely related.

A. Shield bug(s)
B. Soybean looper(s)
C. Mites
D. Two-spotted spider mite(s)
E. Aphid(s)
F. None of the Above

Topic 16 - 1 node Ant Identification and Control Section Post Exam

6 final exam questions. (s) Means answer can be singular or plural

Ant Control

1. _____ can again be a useful tool in eradicating inside-the-home ant nests, although baits may not work as well with carpenter ants as with the other species mentioned.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Pressure or combination pressure/diffusion treatment
F. None of the Above

Carpenter Ants

2. Carpenter ants are most active in the evening hours, foraging for all kinds of food, both inside the house and outside. By following the ants, you may be able to tell where the nest is. Because carpenter ants keep the tunneled galleries very clean and push the _____out small holes in the wood, a small, fresh pile of sawdust under the nest timber is the usual sign of an active carpenter ant nest.

A. Red Imported Fire Ant(s)
B. Argentine ant(s)
C. Carpenter ant(s)
D. Red Harvester Ant(s)
E. Ghost Ant(s)
F. None of the Above

Ghost Ant
Foraging and feeding
3. Workers follow scent trails along the edges of structures for protection. They can often be spotted trailing under the edge of carpets and up the sides of the building, searching for _____.

A. Scent trails
B. Inside-the-home ant nests
C. Mounds of soft soil
D. Nest(s)
E. Brood chamber(s)
F. None of the Above

Harvester Ants
4. Red Harvester Ants can be aggressive and have a painful sting that spreads through the lymph nodes, sometimes causing reactions, especially in animals allergic to their venom. They can also bite ferociously. Over the years, their numbers have been declining, and this has often been attributed to competition for food with the invasive Red Imported Fire Ant and the _____.

A. Red Imported Fire Ant(s)
B. Argentine ant(s)
C. Carpenter ant(s)
D. Red Harvester Ant(s)
E. Ghost Ant(s)
F. None of the Above

Locate and Treat Colonies
5. Drench colonies living in the soil or under items on the exterior with_____. With mulch, be sure to rake it back to get good penetration where colonies may be thriving. Follow up with a broadcast application of granule such as Talstar G.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Demand, Suspend, or Tempo
F. None of the Above

6. If you know with some certainty where the colony is living inside, then you can treat them directly by drilling a small hole into the wall void at the base (directly above the baseboard) and injecting a dust, such as _____.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Pressure or combination pressure/diffusion treatment
F. None of the Above

Topic 17 - 2 node Ant Identification and Control Section Post Exam

6 final exam questions. (s) Means answer can be singular or plural.

Borates- Information is also found on pages 416.
1. Unlike most other wood preservatives and organic insecticides that penetrate best in dry wood, borates are_____—they penetrate unseasoned wood by diffusion, a natural process. Wood moisture content and method and length of storage are the primary factors affecting penetration by diffusion.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Diffusible chemicals
F. None of the Above

2. Application methods include momentary immersion by_____; pressure or combination pressure/diffusion treatment; treatment of composite boards and laminated products by treatment of the wood finish.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Bulk dipping
F. None of the Above

Black Ant

3. Simply picking up rocks and debris around the house will also help. If the ants are nesting in the house, the wall voids will need to be dusted with _____ in areas where ant baits are not to be used. Ant infestation are not easy to control and different strategies should be used depending on nest location and food preferences of the ants.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Demand, Suspend, or Tempo
F. None of the Above

Red Imported Fire Ants

4. Red imported fire ants (RIFA) are medium sized ants that build _____ rarely larger than 18" in diameter. The ants emerge out aggressively when they are disturbed and sting. Their sting usually leaves a white pustule the next day.

A. Scent trails
B. Inside-the-home ant nests
C. Mounds of soft soil
D. Nest(s)
E. Brood chamber(s)
F. None of the Above

Specific Actions

5. If the nest is exposed (e.g. due to remodeling or reroofing) you can use_____, such as bifenthrin, cyfluthrin, deltamethrin, or permethrin. Spray the insecticide directly into as much of the nest as possible.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. A liquid or aerosol ready-to-use insecticide
E. Pressure or combination pressure/diffusion treatment
F. None of the Above

Bait Treatments

6. In a process known as trophallaxis, one ant regurgitates its stomach contents to another ant. This food sharing behavior enables the bait to be spread throughout the colony before the _____takes effect.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Toxicant
F. None of the Above

Agricultural Pesticide Control CEU Training Assignment #5 Alternative Assignment

You will have 90 days from the start of this course to have successfully pass this assignment with a score of 70 %. You may email the answers to TLC, info@tlch2o.com or fax the answers to TLC, (928) 272-0747. This assignment is available to you in a Word Format on TLC's Website. You can find online assistance for this course in Adobe Acrobat's Search function. Once you have paid the course fee, you will be provided complete course support from Student Services (928) 468-0665.

You will need to pick one of the following three assignments to complete. This selection process is based upon your last name. If your last name begins with an A to G, you will pick assignment number 1, if your last name begins with the letter H to M, you are to complete assignment number 2 and if your last name begins with the letter N-S, you will pick assignment number 3 and if your last name starts with T to Z you need to complete assignment #4. If you are a repeat student, please take the alterative version # 5 assignment.

Topic 1 Pesticide Fundamentals Introduction

12 final exam questions. (s) Means answer can be singular or plural.

1. Humans are at the top of the food chain. They bioaccumulate the pesticides accumulated by the lower animals and plants that they eat. It is not only fish but also domestic farm animals and plant food which can accumulate_____. Care must be used in the use of pesticides in agricultural as well as home and garden scenarios.

A. Inert ingredients
B. Insecticide levels
C. Spray characteristics
D. Pesticides
E. Application pesticide chemistry
F. None of the Above

2. _____ are designed to preserve the active ingredients, make them easier to apply or improve their killing ability.

A. Inert ingredients
B. Pesticide levels
C. Product characteristics
D. Adjutant content
E. Chemistry
F. None of the Above

3. The classification of insecticides is done in several different ways:
_____are toxic to insects brought into direct contact.

A. An insect growth regulator
B. Contact insecticides
C. Insecticide(s)
D. Hormonal IGRs
E. IPM program(s)
F. None of the Above

4. Efficacy is often related to the_____, with small droplets (such as aerosols) often improving performance.

A. An insect growth regulator
B. Quality of pesticide application
C. Insecticide(s)
D. Hormonal IGRs
E. IPM program(s)
F. None of the Above

5. PCP is released directly into the atmosphere via volatilization from treated wood products and during production. Finally, releases to the soil can be by _____from treated wood products, atmospheric deposition in precipitation (such as rain and snow), spills at industrial facilities and at hazardous waste sites.

A. Draining
B. Volatilization
C. Leaching
D. Pesticide application(s)
E. Restricted-entry interval
F. None of the Above

6. Carbamate insecticides have similar toxic mechanisms to_____, but have a much shorter duration of action and are thus somewhat less toxic.

A. An insect growth regulator
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Phosphoric acid esters
F. None of the Above

7. Organophosphates are phosphoric acid esters or _____. When developed in the 1930s and 1940s, their original compounds were highly toxic to mammals.

A. Insect growth regulator
B. Temephos
C. Chlorpyrifos
D. Hormonal IGRs
E. Thiophosphoric acid esters
F. None of the Above

8. _____ are formulated as emusifiable concentrates (EC), wettable powders (WP), granulars (G), and aerosols.

A. Insect growth regulator(s)
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Phosphoric acid esters
F. None of the Above

9. Certain _____exhibit striking neurotoxicity in laboratory animals when administered by intravenous injection, and some are toxic by the oral route.

A. Insect growth regulator(s)
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Phosphoric acid esters
F. None of the Above

10. Wood moisture content and method and length of storage are the primary factors affecting penetration by _____. Properly done, diffusion treatments permit deep penetration of large timbers and refractory (difficult-to-treat) wood species that cannot be treated well by pressure.

A. Inert ingredients
B. Pesticide levels
C. Water characteristics
D. Wood moisture content
E. Chemistry
F. None of the Above

11. Water characteristics also vary and influence pesticide behavior. Some of the characteristics are acidity, depth, temperature, clarity, flow rate,_____.

A. And inert ingredients
B. And pesticide levels
C. And water characteristics
D. And wood moisture content
E. Presence of biological organisms and general chemistry
F. None of the Above

12. Malathion, dibrom, chlorpyrifos, temephos, diazinon and terbufos are _____.

A. Insect growth regulator(s)
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Phosphoric acid esters
F. None of the Above

Topic 2 Agricultural Pesticide Application Information

15 final exam questions. (s) Means answer can be singular or plural.

New and Required EPA Information

1. Precise estimates of the number of _____ who will be covered by the WPS are unknown, but the EPA estimates that nearly 5 million owners, operators, family members, hired workers and handlers could be affected.

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Workers and handlers
E. Hand labor operations
F. None of the Above

Employers covered by the WPS must:

2. Reduce overall exposure to pesticides by prohibiting handlers from exposing workers during pesticide application, excluding workers from areas being treated and areas under a restricted entry interval, and_____. Some activities are allowed during restricted entry intervals if workers are properly trained and protected.

A. Work Activities
B. Pesticide application
C. Pesticide(s)
D. Notifying workers about treated areas
E. Potential hazards from toxicity and exposure
F. None of the Above

3. States may also issue worker protection standards that are stricter than the WPS. Therefore, employers should contact their State agency that regulates the Federal Insecticide, Fungicide, and Rodenticide Act in cooperation with the _____to determine whether they must comply with the WPS and local regulations. Nothing in this report replaces technical and professional legal advice.

A. WPS provisions
B. States
C. Annual mandatory training
D. EPA
E. Standards
F. None of the Above

Agricultural Employers Responsibility
New WPS Requirements 2015-2018

4. _____ includes instructions to reduce take-home exposure from pesticides on work clothing and other safety topics.

A. WPS provisions
B. Expanded training
C. Annual mandatory training
D. Personal protective equipment
E. Standards
F. None of the Above

What Will These Changes Achieve?

5. By better protecting our agricultural workers, the agency anticipates fewer pesticide exposure incidents among farmworkers and their family members. Fewer incidents mean a healthier workforce and avoiding lost wages, medical bills, and absences from work and school. In addition, EPA is concerned about _____that may contribute to chronic illness.

A. WPS provisions
B. States
C. Annual mandatory training
D. Personal protective equipment
E. Low level, repeated exposure to pesticides
F. None of the Above

What Types of Activities Are Covered?

6. The regulation seeks to protect and reduce the risks of injury or illness resulting from agricultural workers' (those who perform hand-labor tasks in pesticide-treated crops, such as harvesting, thinning, pruning) and pesticide handlers' (those who mix, load and apply pesticides) use and contact with pesticides on farms, forests, nurseries and greenhouses. The regulation does not cover _____working with livestock.

A. Worker(s)
B. Handler(s)
C. Persons
D. Hired workers and handlers
E. Hand labor operations
F. None of the Above

Family Exemption

7. There is an “immediate family” exemption to the WPS that exempts family members from MOST of the WPS protections. However, family members must still use label required _____ and still must obey the REIs (Restricted Entry Intervals) and the other label requirements.

A. AEZ
B. REI
C. WPS
D. PPE
E. OSHA
F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

Central Location

8. Of course you will still need to keep pesticide application information for _____ days at the central location and the pesticide safety information (poster). The central location must be easily accessible to your employees.

A. 30
B. 45
C. 60
D. 7
E. 360
F. None of the Above

Protection Against Retaliatory Acts

9. Requirements of this subpart designed to reduce the risks of illness or injury resulting from workers' occupational exposure to pesticides, including application and entry restrictions, the design of the warning sign, posting of warning signs, oral warnings, the availability of specific information about applications, and the_____.

A. WPS provisions
B. Protection against retaliatory acts
C. Annual mandatory training
D. Personal protective equipment
E. Safe level
F. None of the Above

Four Basic Requirements

10. There are specific _____ for 12 pesticides, interim restrictive entry levels for certain pesticides, and a general re-entry interval for all other agricultural pesticides prohibiting re-entry into treated areas until sprays have dried, dusts have settled, and vapors have dispersed;

A. AEZ
B. REI
C. WPS
D. EPA
E. OSHA
F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

Mitigating Exposures

11. _____ will be accomplished by requiring decontamination supplies and emergency assistance.

A. Emergency assistance
B. Labeling of the pesticide
C. PPE
D. Requirements in the standard
E. Mitigating exposure(s)
F. None of the Above

Worker Protection Standard for Agricultural Pesticides

12. Provisions of the WPS apply to: Owners or managers of farms, forests, nurseries, or greenhouses where pesticides are _____agricultural plants. Those who hire or contract for services of agricultural workers to do tasks related to the production of agricultural plants on a farm, forest, nursery, or greenhouse.

A. Used in the production of
B. Work
C. Apply
D. Mix, load, or apply agricultural pesticide(s)
E. Tasks related to growing
F. None of the Above

General Duties of WPS

13. Require each person who supervises _____to assure compliance by the worker or handler with the provisions of this standard and to assure that the worker or handler receives the required protection (40 CFR).

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Any worker or handler
E. Hand labor operations
F. None of the Above

Who is Covered by the 2015 WPS?

14. Pesticide handlers: those who mix, load, or apply agricultural pesticides; clean or repair pesticide application equipment; or_____.

A. Application
B. Work
C. Apply
D. Mix, load, or apply agricultural pesticide(s)
E. Assist with the application of pesticides
F. None of the Above

Understanding the Worker Protection Standard?

15. If you are an agricultural pesticide user and/or an employer of agricultural workers or pesticide handlers, the _____ requires you to provide to your employees and, in some cases, to yourself and to others: information about exposure to pesticides, protections against exposures to pesticides, and ways to mitigate exposures to pesticides.

A. AEZ
B. REI
C. WPS
D. EPA
E. OSHA
F. None of the Above

These are abbreviations and can be as exactly as in text or can be used in place of the full term.

Topic 3 Common Pesticide Applications and Methods

17 final exam questions. (s) Means answer can be singular or plural.

1. Obtaining uniform coverage of an area is difficult with a hand operated sprayer. The operator must move the nozzle from side to side with _____.

A. Field crops
B. Action thresholds
C. Agriculture industry
D. Any action necessary
E. Compatibility agents
F. None of the Above

2. There are many other types of hand operated sprayers that are not widely used throughout the agriculture industry. Some may be used extensively for the production of_____.

A. Field crops
B. Action thresholds
C. Specific commodities
D. Any action necessary
E. Compatibility agents
F. None of the Above

3. Most sprayers distribute pesticides using a boom with spray nozzles spaced at regular intervals. The most common example would be wide horizontal booms used on _____to spray field crops.

A. Motorized sprayers
B. Spray nozzles
C. Wide horizontal booms
D. Field sprayers
E. Airblast sprayers
F. None of the Above

4. In field crops good coverage is relatively easy to achieve where the _____is small and close to the nozzles. In tree fruits, especially with large trees, good coverage with conventional sprayers is more difficult to achieve.

A. Field crops
B. Action thresholds
C. Agriculture industry
D. Target foliage
E. Compatibility agents
F. None of the Above

5. Examples of _____ include Arborchem and kerosene.
A. Insect growth regulator D. Hormonal IGRs
B. Penetrating Agents E. Restricted pesticides
C. Action thresholds F. None of the Above

6. Many IGRs are labeled "reduced risk" by the Environmental Protection Agency, meaning that they target _____while causing less detrimental effects to beneficial insects.
A. Insect growth regulator D. Hormonal IGRs
B. Juvenile harmful insect populations E. Restricted pesticides
C. Action thresholds F. None of the Above

7. Hormonal IGRs typically work by mimicking or inhibiting the juvenile hormone (JH), one of the two major hormones involved in insect molting. IGRs can also inhibit the other hormone, ecdysone, large peaks of which trigger the_____.
A. Insect growth regulator D. Hormonal IGRs
B. Chitin E. IPM program(s)
C. Insect to molt F. None of the Above

8. Hexaflumuron (hexaflumeron) is a(n) _____ that interferes with insects' chitin synthesis.
A. Pesticide chemical application D. Restricted pesticide
B. Pyrethroid E. Organophosphate
C. Insect growth regulator F. None of the Above

9. Diflubenzuron is an insecticide of the _____class. It is used in forest management and on field crops to selectively control insect pests.
A. Benzamide D. Restricted pesticide
B. Pyrethroid E. Organophosphate
C. Insect growth regulator F. None of the Above

10. Pyriproxyfen is a juvenile hormone analogue, preventing larvae from developing into adulthood and thus rendering them unable to reproduce. In the US pyriproxyfen is often marketed under the trade name Nylar. In Europe _____is known under the brand names Cyclio (Virbac) and Exil Flea Free TwinSpot (Emax).
A. Benzamide D. Restricted pesticide
B. Pyrethroid E. Organophosphate
C. Pyriproxyfen F. None of the Above

11. Methoprene is a(n) _____ with activity against a variety of insect species including horn flies, mosquitoes, beetles, tobacco moths, sciarid flies, fleas (eggs and larvae), fire ants, pharaoh ants, midge flies and Indian meal moths.
A. Insect growth regulator D. Hormonal IGRs
B. Chitin E. Benzamide
C. Benzoyl-phenylurea termiticide F. None of the Above

12. IPM is not a single pest control method but, rather, a series of pest management evaluations, decisions and controls. In practicing IPM, growers who are aware of the potential for pest infestation follow _____approach.
A. Pesticide chemical application(s) D. Restricted pesticides
B. Pyrethroids E. Organophosphates
C. An insect growth regulator F. None of the Above

13. Adjuvants, or additive compounds, aid in the mixing, application or effectiveness of pesticides. One class of adjuvants, _____, allow(s) uniform mixing of compounds that would normally separate. Other types of adjuvants include spreaders, stickers, and synergists.

A. Restricted pesticides
B. Action thresholds
C. Agriculture industry
D. Pesticide chemical application(s)
E. Compatibility agents
F. None of the Above

14. A _____must assure that handlers understand all of the labeling requirements related to safe use of pesticides before any handling activity takes place. The handler must also have access to the product labeling information during handling activities.

A. Handler(s)
B. Agricultural employer(s)
C. Handler employer
D. Early-entry workers
E. Worker(s)
F. None of the Above

The following are found in Topic 4 Section

15. The following three types of information must be displayed at a central location before a pesticide is applied: Pesticide-specific application information, which must include: the location and description of the area to be treated, product name, EPA registration number, and_____, time and date the pesticide is scheduled to be applied, and restricted-entry interval for the pesticide.

A. WPS safety poster
B. Decontamination supplies
C. Restrictions
D. Pesticide-specific application information
E. Personal protective equipment (PPE)
F. None of the Above

16. The WPS requires that decontamination supplies be provided regardless of the _____. There is no exemption for employers with only a few employees.

A. WPS safety poster
B. Decontamination supplies
C. Restrictions
D. Pesticide-specific application information
E. Personal protective equipment (PPE)
F. None of the Above

17. Decontamination and emergency eyeflush water must, at all times when it is available to_____, be of a quality and temperature that will not cause illness or injury when it contacts the skin or eyes or if it is swallowed.

A. Handler(s)
B. Workers or handlers
C. Handler employer
D. Early-entry workers
E. Worker(s)
F. None of the Above

Topic 4 - Decontamination and Emergency Requirements

14 final exam questions. (s) Means answer can be singular or plural.

Which Pesticides Uses are Covered?

1. Most pesticide uses involved in the production of agricultural plants on a farm, forest, nursery, or greenhouse are covered by the WPS. This includes pesticides used on plants, and pesticides used on the soil or planting medium the plants are (or will be) grown in. Both general-use and restricted-use pesticides are covered by the_____ . You will know that the product is covered by the WPS if you see the following statement in the Directions for Use section of the pesticide labeling.

A. Emergency assistance
B. Labeling of the pesticide
C. PPE
D. Requirements in the standard
E. WPS
F. None of the Above

Decontamination Supplies and Requirements

2. _____ must have adequate water for routine washing, soap and sufficient paper towels.

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Workers, handlers and early-entry workers
E. Hand labor operations
F. None of the Above

3. Handlers and early-entry workers must also carry _____ of water with them (or it must be "immediately" nearby on their vehicle) for emergency eyeflushing when the pesticide label requires protective eyewear (goggles or faceshield).

A. A pint
B. Gallon
C. 2 gallons
D. 2 pints
E. 5 gallons
F. None of the Above

WPS Requires Providing Decontamination Sites

4. _____ must establish a decontamination site for all workers and handlers for washing off pesticides and pesticide residues. A decontamination site must be within a quarter (1/4) mile of the employees' work site.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Workers and handlers
E. Employe(es)
F. None of the Above

No-contact early-entry workers do **not** have to be provided the special protections required in 5. Early Entry. However, they must be provided the following protections offered to other agricultural workers: information at a central location, pesticide safety training for workers, notification, restrictions during applications and during restricted-entry intervals, and emergency assistance. Decontamination supplies, however, need **not** be provided to _____ workers.

A. No hand labor
B. No Contact
C. Short-term
D. No entry
E. No-contact early-entry
F. None of the Above

Specific Duties - Emergency Transportation

6. Promptly make emergency transportation available to take the worker to an emergency medical facility able to provide treatment: from the agricultural establishment, or _____ can "make transportation taking the employee to the emergency medical facility, or calling a such as an ambulance, or making sure the employee has a ride to the medical and facility with someone else.

A. Worker(s)
B. Handler(s)
C. Agricultural employer
D. Employers
E. Workers and handlers
F. None of the Above

Emergency Information

7. Provide to the worker or handler or to treating medical personnel, promptly upon emergency vehicle, request, any obtainable information on: product name, EPA registration number, and active ingredients for any product(s) to which the person may have been exposed, antidote, first aid, _____and other medical or emergency information from the product labeling, description of the way the pesticide was being used, circumstances of the worker's or handler's exposure to the pesticide.

A. Emergency assistance
B. Labeling of the pesticide
C. Statement of practical treatment
D. Requirements in the standard
E. Mitigating exposure(s)
F. None of the Above

Requirements for Handlers

8. The general applicability, exceptions and exemptions in the requirements for handlers and workers are the same. However, the requirements for _____have specific differences.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Workers and handlers
E. Employe(es)
F. None of the Above

Restrictions During Application

9. The handler employer must assure that**:** No pesticide is applied so as to contact any worker (directly or through _____) other than an appropriately trained and equipped handler.

A. Drift
B. Droplets
C. Contact
D. Dusts
E. Application
F. None of the Above

Pesticide Safety Training

10. A handler employer must assure that each handler is properly trained in pesticide safety by a qualified trainer.

A. True
B. False

11. The minimum pesticide training required, as well as the criteria for qualified trainers, is specified in the standard. _____ who have been trained under 40 Code of Federal Regulations, Part 171 are exempt from this requirement.

A. Worker(s)
B. Handler(s)
C. Agricultural employer
D. Certified handlers and handlers
E. Workers and handlers
F. None of the Above

Notice of Application to Agricultural Employers

12. Prior to applying any pesticide on an agricultural establishment, a handler employer must provide the following information to an agricultural employer or be assured that the agricultural employer is aware of the specific time, date, location, and description of_____ , labeling requirements relating to protection of workers during or after application, product name, the EPA registration number, active ingredients, REI, and notification requirements.

A. The pesticide-treated area
B. Labeling of the pesticide
C. PPE
D. Requirements in the standard
E. Mitigating exposure(s)
F. None of the Above

Pesticide Safety Training

13. A handler employer must assure that each handler is properly trained in pesticide safety by a_____. The minimum pesticide training required, as well as the criteria for qualified trainers, is specified in the standard.

A. Worker(s)
B. Handler(s)
C. Agricultural employer
D. Qualified trainer
E. Workers and handlers
F. None of the Above

14. _____ and handlers who have been trained under 40 Code of Federal Regulations, Part 171 are exempt from this requirement.

A. Worker(s)
B. Certified handlers
C. Agricultural employer
D. Qualified trainer
E. Workers and handlers
F. None of the Above

Employee Rights:

15. A _____ may designate a representative to request, on their behalf, pesticide application and hazard information.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Workers and handlers
E. Employe(es)
F. None of the Above

Topic 5 Personal Protection Equipment, Safety, Health Section

15 final exam questions. (s) Means answer can be singular or plural.

How is the AEZ measured and the size of the AEZ determined?

1. The AEZ is measured from the application equipment. The AEZ also moves with the application equipment like a halo around the_____.

A. No responsibilitie(s)
B. Applicable AEZ distance(s)
C. AEZ
D. Application equipment
E. Planting medium
F. None of the Above

2. Does the new WPS requirements related to the AEZ apply to the agricultural employer or the handler making the application. There are several different requirements regarding the AEZ in the_____ . First, the WPS provision at 170.405(a)(1) establishes the applicable AEZ distances.

A. No responsibilitie(s)
B. Applicable AEZ distance(s)
C. Revised WPS
D. Halo around the application equipment
E. Planting medium
F. None of the Above

3. The agricultural employer may not allow a pesticide to be applied while _____ on the establishment is in the treated area or within the AEZ.

A. Worker(s)
B. Handler(s)
C. Any worker or other person
D. Workers and handlers
E. Employe(es)
F. None of the Above

4. Does the agricultural employer have WPS responsibilities related to the new AEZ requirements if workers or other persons are off his/her establishment? The AEZ requirement at §170.405(a) imposes no responsibilities on an agricultural employer in regard to workers or other persons who are not on the _____ as long as the agricultural employer is not the pesticide applicator.

A. No responsibilitie(s)
B. Applicable AEZ distance(s)
C. Agricultural establishment
D. Halo around the application equipment
E. Planting medium
F. None of the Above

5. If the agricultural employer is also the handler making the pesticide application, then §170.505 would require him/her to suspend a pesticide application if any worker or other person is within the AEZ beyond the boundary of the_____.

A. Agricultural employer
B. AEZ
C. Agricultural establishment
D. Pesticide application
E. Pesticide applicator
F. None of the Above

6. It is important to note that this answer only applies in regard to workers and other persons beyond the boundaries of the establishment; if a handler were to resume an application while workers or other persons on the establishment are still within the _____, that would give rise to a violation of § 170.405.

A. Agricultural employer
B. AEZ
C. Establishment
D. Pesticide application
E. Pesticide applicator
F. None of the Above

Prevention, Recognition, First Aid Treatment of Heat-Related Illness
Heat-Related Illnesses and First Aid

7. _____, the most serious form of heat-related illness, happens when the body becomes unable to regulate its core temperature. Sweating stops and the body can no longer rid itself of excess heat. Signs include confusion, loss of consciousness, and seizures.

A. Tired muscles
B. Heat stroke
C. Heat rash
D. Heat exhaustion
E. Heat cramps
F. None of the Above

8. _____ is a medical emergency that may result in death! Call 911 immediately.
A. Heat rash D. Heat exhaustion
B. Heat stroke E. Heat cramps
C. Tired muscles F. None of the Above

9. _____—those used for performing the work—are usually the ones most affected by cramps. Cramps may occur during or after working hours.
A. Heat rash D. Heat exhaustion
B. Heat stroke E. Heat cramps
C. Tired muscles F. None of the Above

10. _____, also known as prickly heat, is skin irritation caused by sweat that does not evaporate from the skin. Heat rash is the most common problem in hot work environments.
A. Tired muscles D. Heat exhaustion
B. Heat stroke E. Heat cramps
C. Heat rash F. None of the Above

Why Rinse Pesticide Containers?
11. Proper rinsing of pesticide containers is easy to do, saves money, and helps protect people and the environment. It also helps prevent potential problems with un-rinsed containers, rinsate storage, and pesticide wastes. Even during a busy season the few extra minutes it takes to properly _____is time well spent.
A. Triple punched D. Dispose of the rinsate
B. Properly rinsed E. Rinse empty pesticide containers
C. Pesticide container F. None of the Above

12. Rinsate from the containers, when added directly into the sprayer tank, efficiently and economically uses all pesticide in the container. This eliminates the need to store and later dispose of the _____.
A. Triple punched D. Rinsate
B. Properly rinsed E. Rinsate storage, and pesticide wastes
C. Pesticide containers F. None of the Above

Rinsing Helps Protect the Environment
13. Proper rinsing of pesticide containers reduces a potential source of contamination of soil, surface, and ground water. When contamination occurs, plants and animals may be harmed and water supplies affected. _____is always better than cleanup. Rinsing also helps in reducing the problem of handling pesticide wastes.
A. Triple punched D. Prevention of environmental contamination
B. Properly rinsed E. Rinsate storage, and pesticide wastes
C. Pesticide containers F. None of the Above

14. No matter how an empty pesticide container is disposed of, it must be properly _____.
A. Triple punched D. Dispose of the rinsate
B. Properly rinsed E. Rinsate storage, and pesticide wastes
C. Rinsed and triple punched F. None of the Above

15. Both federal and state laws require rinsing. Landfill operators and recyclers can only accept properly_____. Pesticide containers should only be offered to recycling projects designed for pesticide containers and not general plastic and metal recycling programs. Pesticide container recycling project personnel will inspect containers to determine if they have been properly rinsed.
A. Triple punched D. Dispose of the rinsate
B. Properly rinsed E. Rinsate storage, and pesticide wastes
C. Rinsed containers F. None of the Above

Topic 6 WPS Required Training Section

15 final exam questions. (s) Means answer can be singular or plural.

Training Requirements

1. If a worker or handler was trained in _____, they will need to receive WPS training within 1 year of the 2016 training. This training will not need to include the 2018 training content. For example, a worker trained on April 14, 2016 will need to be retrained prior to April 14, 2017.

A. 2015
B. 2016
C. 2017
D. 2018
E. 2014
F. None of the Above

2. If a worker or handler was not trained in _____, they would have to be trained before they do any worker or handler tasks.

A. 2015
B. 2016
C. 2017
D. 2018
E. 2014
F. None of the Above

The training must include, at a minimum, all of the following after January 2, 2017:

3. Where and in what form pesticides may be encountered during _____.

A. Work Activities
B. Toxicity and exposure
C. Pesticide(s)
D. Pesticide application
E. Pesticide applicator
F. None of the Above

4. _____, including emergency eye flushing techniques.

A. Workers' questions
B. Safety
C. All training materials
D. Emergency decontamination procedures
E. Routine and emergency decontamination procedures
F. None of the Above

5. Requirements designed to reduce the risks of illness or injury resulting from workers' occupational exposure to pesticides, including application and entry restrictions, the design of the warning sign, posting of warning signs, oral warnings, the _____ about applications, and the protection against retaliatory acts

A. Availability of specific information
B. Emergency assistance
C. Information exchange(s)
D. Appropriate measure(s)
E. Safe operation
F. None of the Above

6. Requirements that must be followed by handler employers for the protection of handlers and other persons, including the prohibition against applying pesticides in a manner that will cause contact with_____, the requirement to use personal protective equipment, the provisions for training and decontamination, and the protection against retaliatory acts.

A. Worker(s)
B. Handler(s)
C. Workers or other persons
D. Workers and handlers
E. Employe(es)
F. None of the Above

7. The responsibility of agricultural employers to provide specific information to workers before directing them to perform early-entry activities. _____ must be 18 years old to perform early-entry activities.

A. Worker(s)
B. Handler(s)
C. Agricultural Employer(s)
D. Hired workers and handlers
E. Hand labor operations
F. None of the Above

8. After working in pesticide treated areas, remove work boots or shoes before entering your home, and _____and wash or shower before physical contact with children or family members.

A. Work Activities
B. Pesticide applicator
C. Remove work clothes
D. Pesticide application
E. Potential hazards from toxicity and exposure
F. None of the Above

Decontamination Supplies

9. 1 gallon of water per worker and _____ gallons of water per handler at the beginning of each work period for routine and emergency decontamination,

A. 100
B. 2
C. 3
D. 5
E. 10
F. None of the Above

10. Plenty of soap and single-use towels, Note: hand sanitizers and wet towelettes are insufficient. 170.411 (b)(2) and 170.509 (b)(2) A clean coverall (or other clean change of clothes) for _____.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Workers and handlers
E. Employe(es)
F. None of the Above

Labeling Information Section

11. A handler employer must assure that handlers understand all of the labeling requirements related to safe use of pesticides before any handling activity takes place. The handler must also have access to the _____ during handling activities.

A. Emergency assistance
B. Labeling of the pesticide
C. PPE
D. Product labeling information
E. Mitigating exposure(s)
F. None of the Above

Personal Protective Equipment

12. Any person handling a pesticide must use the clothing and PPE specified on the label for product use. Characteristics of protective clothing and PPE are specified in the_____, as are exceptions to PPE specified on product labeling. The handler employer must take appropriate measures to prevent heat-related illnesses.

A. Requirement(s)
B. Emergency assistance
C. Information exchange(s)
D. Appropriate measure(s)
E. Standard
F. None of the Above

Workers and Handlers Section

Who Must Protect Workers and Handlers?

13. Employers are responsible for making sure that workers and handlers receive the protections required by the pesticide labeling and the WPS. The term “employer” has a special meaning in the WPS — you are an employer even though you are _____ or use only members of your own family to do the work on your establishment.

A. Worker(s)
B. Handler(s)
C. Employer(s)
D. Self-employed
E. Employe(es)
F. None of the Above

WPS Employer Definitions

Worker Employers:

14. Worker employers are people who: _____ for the services of workers (including themselves and members of their family) for any type of compensation.

A. Employ or contract
B. Work
C. Apply
D. Mix, load, or apply agricultural pesticide(s)
E. Tasks related to growing
F. None of the Above

Handler Employers:

15. Handler employers are people who: employ pesticide handlers (including members of their family), for any type of compensation, or are self-employed as_____.

A. Worker(s)
B. Handler(s)
C. Pesticide handlers
D. Workers and handlers
E. Employe(es)
F. None of the Above

Topic 7 Beneficial Insect Identification

18 final exam questions. (s) Means answer can be singular or plural.

1. Both the larvae and adults of this lady beetle feed on mealybugs. They may also feed on aphids and immature scale insects. Each adult female lays hundreds of eggs in mealybug egg masses. When the beetle larvae hatch, they feed on _____.

A. Scale insects or spider mites
B. White silken cocoons of parasites
C. Restriction of the colony
D. Spider mites, thrips, and their eggs
E. Immature mealybugs
F. None of the Above

2. While _____may vary widely, they are usually shiny. Black is a common color, sometimes with a metallic sheen of another color on their wing covers. Most ground beetles feed at night and hide in the soil or under debris during the day.

A. A starch in their saliva
B. Chagas disease
C. Shapes and colors
D. Yellowish to creamy
E. Very sensitive to touch
F. None of the Above

3. Lady beetles that feed on scale insects or spider mites do not lay their eggs in masses. Instead, eggs are laid singly on leaves or_____. Most lady beetle larvae are elongated in form and slightly pointed at the rear.

A. Under the cover of the scale insect
B. White silken cocoons of parasites
C. Restriction of the colony
D. Spider mites, thrips, and their eggs
E. Nectar- or pollen-producing plants
F. None of the Above

4. These fascinating insects may resemble a tiny scorpion when they hold the tip of their abdomen up in the air. They are _____and measure 1/10 to one inch long. Depending upon species, rove beetles prey upon aphids, springtails, mites, nematodes, slugs, snails, fly eggs and maggots. They also eat and help break down decaying organic material.

A. Slow moving
B. Fast moving
C. Small
D. Yellowish to creamy
E. Very sensitive to touch
F. None of the Above

5. The adults are_____. They supplement their diet with nectar and pollen and can be minor pollinators. Soldier beetle populations can be increased by planting good nectar- or pollen-producing plants such as Asclepias or Solidago.

A. Similar to scale insects or spider mites
B. White silken cocoons of parasites
C. Part of the colony
D. Very sensitive to touch
E. Especially important predators of aphids
F. None of the Above

6. Some blood-sucking species, particularly Triatoma spp. and other members of the subfamily Triatominae (e.g., Paratriatoma hirsuta), are also known as kissing bugs due to their habit of biting humans in their sleep on the soft tissue of the lips and eyes; a number of these haematophagous species, located in Central and South America, are able to _____.

A. Have a starch in their saliva
B. Transmit venereal disease
C. Eat bananas
D. Emit a yellowish to creamy ice cream flavor
E. Kiss people
F. None of the Above

7. Adults are 2–5 mm long and feed mostly on _____, but will also feed on pollen and vascular sap. These predators are common in gardens and landscapes. They have a fairly painful bite, but are not poisonous.

A. Scale insects or spider mites
B. White silken cocoons of parasites
C. Aphid lions
D. Spider mites, thrips, and their eggs
E. Nectar- or pollen-producing plants
F. None of the Above

8. They are voracious predators, attacking most insects of suitable size, especially soft-bodied ones (aphids, caterpillars and other insect larvae, insect eggs, and at high population densities also each other). Therefore, the larvae are colloquially known as "aphid lions" (also spelled "aphidlions") or "_____", similar to the related antlions. Their senses are weakly developed, except that they are very sensitive to touch.

A. Scale insects
B. Parasites
C. Aphid wolves
D. Ant tigers
E. Green monsters
F. None of the Above

9. Hoverflies, sometimes called flower flies or syrphid flies, make up the insect family Syrphidae. As their common name suggests, they are often seen hovering or nectaring at flowers; the adults of many species feed mainly on nectar and pollen, while the larvae (maggots) eat_____.

A. Scale insects or spider mites
B. Other parasites
C. A wide range of foods
D. Spider mites, thrips, and their eggs
E. Nectar- or pollen-producing plants
F. None of the Above

10. Females of many species have a spine-like egg-laying structure (ovipositor) at the tip of the abdomen. Larval stages are usually not observed unless they are dissected from hosts (internal parasites) or_____.

A. Omit a starch in their saliva
B. Present Chagas disease
C. Detected on the host (external parasites)
D. Are yellowish to creamy
E. Are very sensitive to touch
F. None of the Above

11. Every year, queens that were born and fertilized at the end of the previous season begin a new colony. The _____ selects a location for its nest, begins building it, lays a first batch of eggs and feeds this first group of larvae.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Queen(s)
D. Larvae(s)
E. Honey bee(s)
F. None of the Above

12. Currently, there are only seven recognized species of _____ with a total of 44 subspecies, though historically, anywhere from six to eleven species have been recognized.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

13. Bumble bees form colonies. These colonies are usually much less extensive than those of honey bees. This is due to a number of factors including the small physical size of the nest cavity, the responsibility of a _____for the initial construction and reproduction that happens within the nest, and the restriction of the colony to a single season (in most species).

A. Single female
B. Mason bee(s)
C. Queen(s)
D. Larvae(s)
E. Honey bee(s)
F. None of the Above

14. Smaller than a _____, mason bees resemble house flies more than honey bees. They are deep blue-black in color and have no stripes. Mason bees are native to North America. They are active pollinators between cherry blossom and apple blossom season, and then die out by summer.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

15. Attract _____ by providing them a home. Drill holes exactly 5/16-inch in diameter into wooden blocks and mount the blocks by cherry blossom season facing morning sun.

A. Cuckoo bee(s)
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

16. Cuckoo Bees are parasites, in that the female cuckoo bee lays her eggs in the nest of other bees, primarily_____.

A. Digger bees and Andrenids
B. Mason bee(s)
C. Temperate specie(s)
D. Bumble bee(s)
E. Honey bee(s)
F. None of the Above

17. Centipedes are predators, and mainly use their antennae to seek out their prey. The digestive tract forms a simple tube, with digestive glands attached to the mouthparts. Like insects, centipedes breathe through a tracheal system, typically with a single opening, or spiracle on each body segment. They excrete waste through _____

A. Scopa
B. Involucrum
C. Rectum
D. A single pair of malpighian tubules.
E. A starch in their saliva
F. None of the Above

18. Adult flies feed on flowers and nectar from aphids and scale insects. As many species typically feed on pollen, they can be important pollinators of some plants, especially at higher elevations in mountains where bees are relatively few. The taxonomy of this family presents many difficulties. It is largely based on_____, but also on reproductive habits and on the immature stage.

A. Scopa
B. Involucrum
C. Number of factors
D. Morphological characters of the adult flies
E. Starch in their saliva
F. None of the Above

Topic 8 Honey Bee Detailed Section Post Exam

1. The honey bee undergoes complete metamorphosis, passing through four stages: egg, larva, pupa, and adult. Bees develop into three different castes:_____, queens, and drones.

A. Pupa
B. Soldiers(s)
C. Virgin queen(s)
D. Scout bees
E. Workers
F. None of the Above

2. Developmental time and longevity vary with each caste and among races. When honey bees emerge as adults, they continue to develop. At first their body is soft, but the cuticle hardens in about 12-24 hours. During the next few days, glands and reproductive organs (in the_____) develop and mature.

A. Drones
B. Queen(s)
C. Virgin queen(s)
D. Scout bees
E. Queens and drones
F. None of the Above

3. _____ produce semen in about 12 days and queens begin to lay eggs about three days after mating. In a typical colony there will be only one laying queen, about 100 – 300 drones, and about 20,000 - 60,000 workers.

A. Drones
B. Kings(s)
C. Soldiers(s)
D. Scout bees
E. Each caste and among races
F. None of the Above

4. When mature, virgin queens take a mating flight and mate with 10-15 _____. In about three days the queen begins to lay eggs.

A. Drones
B. Queen(s)
C. Virgin queen(s)
D. Scout bees
E. Workers
F. None of the Above

5. _____may lay as many as 1,500 eggs in a single day and around 200,000 eggs in a year. The queen controls whether or not the eggs are fertilized, using sperm stored in her spermatheca.

A. Drones
B. A queen
C. Virgin queen(s)
D. Scout bees
E. Each caste and among races
F. None of the Above

6. The AHB swarms much more frequently than other honey bees. A colony is a group of bees with comb and brood. _____may either be managed (white hive boxes maintained by professional beekeepers) or wild (feral).

A. The AHB swarms
B. Swarm
C. The colony
D. Swirling mass of flying bees
E. Brood
F. None of the Above

7. A group of bees that are in the process of leaving their parent colony and starting a nest in a new location is called a "_____." Usually a new queen is reared to stay with the parent colony and the old queen flies off with the swarm.

A. AHB swarms
B. Swarm
C. Scout bee(s)
D. Swirling mass of flying bees
E. Brood
F. None of the Above

8. _____ often locate potential nest sites prior to swarming, but the swarm may spend a day or two clustered in impressive, hanging clumps on branches or in other temporary locations until the bees settle on a new nesting site. If they can't find a suitable location, the bees may fly several miles and cluster again.

A. The AHB swarms
B. Swarm
C. Scout bee(s)
D. Swirling mass of flying bees
E. Drones
F. None of the Above

9. When the swarm emerges from its domicile and settles in a cluster on a tree, certain "_____" communicate to it the availability of other domiciles. At least some of these domiciles may have been located by the scout bees before the swarm emerged.

A. Drones
B. Queen(s)
C. Virgin queen(s)
D. Scout bees
E. Each caste and among races
F. None of the Above

10. Pyrethrins are_____**.** Pyrethrins, bee killers derived from the flowers of the chrysanthemum, work quite well as a spray for controlling bee populations. Pyrethrins are not generally used to destroy entire bee colonies.

A. Another natural bee pesticide
B. Hazardous
C. Used for bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

Topic 9 Africanized Honey Bee Section Post Exam

1. Africanized bees are simply a strain of _____, the same species introduced from Europe that produces our honey and pollinates many of our plants. An African strain was introduced to South America in an effort to produce a bee better suited to the tropics.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

2. African bees were brought to Brazil in 1956 by biologists wanting to create an _____that would perform well in the South American climate. But in 1957, measures to contain the colonies were accidentally removed and several swarmed into the countryside.

A. African/European hybrid
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

3. Beekeepers learned to take proper precautions and Venezuelans became familiar with potential dangers. _____ are a real and significant threat for those who must live with them, but they can be dealt with as long as the appropriate precautions and control measures are taken.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

4. Africanized honey bees (Apis mellifera scutellata) and European honey bees (Apis m. mellifera) are the same species - they look the same, sting in defense of themselves or their nest, can only sting once, and have the same venom. _____ are slightly smaller (but because the bees look so much alike only a laboratory analysis can tell them apart).

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

5. The Africanized honey bee is simply a hybrid honey bee, a result of breeding the European honey bee, Apis mellifera mellifera, with the African honey bee, Apis mellifera scutellata. The genetic differences in the hybrid Africanized bee make its habits different from those of the _____cultured in the United States.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Domestic European honey bee
E. An African strain
F. None of the Above

6. _____workers have barbed stingers. When either type of bee stings a human, it leaves both the stinger and tiny, attached venom sac. This causes the bee to die soon after. If you are stung, simply scrape the stinger out to remove it.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. European and Africanized
F. None of the Above

7. The AHB will swarm more frequently than the EHB. Typically, an EHB colony swarms once every year or two; an AHB colony may swarm 4-8 times a year. Generally, a(n) _____ swarm is much smaller than an EHB swarm; some aren't much larger than a coffee cup.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

8. Compared with the EHB, the AHB devotes a greater percentage of its nest to brood production and less to honey storage. Because the developmental period of the _____ is shorter than that of the EHB, it's able to produce more bees in less time.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

9. An AHB colony produces more drones than an EHB colony of equal size. In areas where the AHB has become established, the _____ queens appear to mate with AHB drones at a much higher frequency than with EHB drones. Similar behavior in areas where large numbers of EHB colonies are maintained is being studied.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

10. Identifying the _____is very difficult. The characteristics used for identification differ only slightly and overlap considerably among individuals. Accurate identification is not only difficult but time-consuming and expensive.

A. Their hybrids
B. EHB (European) Apis m. mellifera
C. AHB (Africanized) Apis mellifera scutellata
D. Honey bees
E. An African strain
F. None of the Above

Topic 10 Modern European Bee Hive Section Post Exam

1. Bee pollen is the male seed of a flower blossom which has been gathered by the bees and to which special elements from the bees has been added. The honeybee collects _____and mixes it with its own digestive enzymes.

A. Nectar
B. Propolis
C. Honey
D. Pollen
E. Temperate propolis and tropical propolis
F. None of the Above

2. _____contains from one hundred thousand to five million pollen spores each capable of reproducing its entire species.

A. Propolis
B. Sources of resin
C. Nectar
D. Male seed of a flower blossom
E. One pollen granule
F. None of the Above

3. _____is a wax-like, resinous substance that bees collect from tree buds, or other botanical sources, and use as a sealant for unwanted open spaces in the hive.

A. Nectar
B. Propolis
C. Honey
D. Digestive enzymes
E. Temperate propolis and tropical propolis
F. None of the Above

4. Bees usually carry _____ out of and away from the hive. However if a small lizard or mouse, for example, found its way into the hive and died there, bees could be unable to carry it out through the hive entrance. In that case, they would attempt instead to seal the carcass in propolis, essentially mummifying it and making it odorless and harmless.

A. Propolis
B. Sources of resin
C. Nectar
D. Male seed of a flower blossom
E. Pollen
F. None of the Above

5. The composition of propolis will vary from hive to hive, district to district, and from season to season. Normally it is dark brown in color, but it can be found in green, red, black and white hues, depending on the sources of resin found in the particular hive area. Bees are opportunists, and will gather what they need from_____.

A. Nectar
B. Propolis
C. Honey
D. Available sources
E. Temperate propolis and tropical propolis
F. None of the Above

6. The source of propolis varies in a major way with latitude. In temperate climates bees collect resins from trees, mostly poplars and to lesser extent conifers. The biological role of propolis in trees is to seal wounds and defend against_____. In tropical regions, bees gather propolis from flowers, especially Clusia, that have adapted propolis to attract pollinators.

A. Propolis
B. Sources of resin
C. Nectar
D. Bacteria, fungi and insects
E. Pollen
F. None of the Above

7. The chemical composition of _____ are different. Poplar propolis is rich in flavanoids. Clusia propolis contains polyprenylated benzophenones.

A. Nectar
B. Propolis
C. Honey
D. Digestive enzymes
E. Temperate propolis and tropical propolis
F. None of the Above

8. "Typical" propolis has approximately 50 constituents, primarily resins and vegetable balsams (50%), waxes (30%), essential oils (10%), and pollen (5%). _____ is sticky at and above room temperature. At lower temperatures it becomes hard and very brittle.

A. Propolis
B. Sources of resin
C. Nectar
D. Male seed of a flower blossom
E. Pollen
F. None of the Above

9. Bees actually have two stomachs, their honey stomach which they use like a _____ backpack and their regular stomach.

A. Nectar
B. Propolis
C. Honey
D. Digestive enzymes
E. Temperate propolis and tropical propolis
F. None of the Above

10. The honey stomach holds almost 70 mg of nectar and when full, it weighs almost as much as the bee does. Honeybees must visit between 100 and 1500 flowers in order to fill their _____stomachs.

A. Propolis
B. Sources of resin
C. Nectar
D. Honey
E. Pollen
F. None of the Above

Topic 11 Bee Control Section Post Exam

1. In some cases, attempting to destroy a nest becomes a greater health risk than simply tolerating and avoiding it. But nests, especially those of social species, should be destroyed if they are close enough to humans to pose a _____.

A. Nest(s)
B. Thousand bees
C. Hazard
D. First males
E. Stinging threat
F. None of the Above

2. The nests of honey bees, bumble bees, yellowjackets and hornets should always be approached with caution, preferably at night when most of the workers are present but reluctant to fly. Try not to carry a light, as wasps and bees may fly toward it. Instead, set the light aside or cover it with red cellophane (insects cannot see red light). If there is direct access to the nest, a fast-acting dust or wettable powder formulation can be applied. If possible, inject the material into the _____.

A. Nest(s)
B. Thousand bees
C. Net
D. Hole
E. Crack
F. None of the Above

3. If you must approach these nests during daytime, _____ can be used to keep the bees/wasps at bay, while you treat the nest as above. Heavy clothing or a “bee suit” can be worn for added protection.

A. Odor
B. Bear
C. Dusting device
D. Heat spray
E. An application
F. None of the Above

4. Unless you have a thousand bees swarming your face, the _____is a great way to get rid of bee pests that are in the house. Simply use the hose attachment and suck them into oblivion.

A. Smoke
B. Vacuum cleaner
C. Dusting device
D. Heat spray
E. An application
F. None of the Above

5. Certain _____are harmful to bees. That’s why we require instructions for protecting bees on the labels of pesticides that are known to be particularly harmful to bees. This is one of many reasons why everyone must read and follow pesticide label instructions.

A. Smoke
B. Vacuum cleaner
C. Dusting device
D. Heat spray
E. Pesticides
F. None of the Above

6. When a _____is completely filled to its capacity, or when dust is packed down inside the duster, dust does not come out in proper form.

A. Hand bellows duster
B. Vacuum cleaner
C. Dusting device
D. Back pack
E. Bee kill machine
F. None of the Above

7. Aldicarb is a carbamate insecticide which is the active substance in the pesticide _____. It is effective against thrips, aphids, spider mites, lygus, fleahoppers, and leafminers, but is primarily used as a nematicide.

A. Four stereoisomers
B. An enzyme
C. Insecticidal concentrations
D. An insecticide and as molluscicide
E. Nicotine-based, systemic insecticide
F. None of the Above

8. It is_____, which means that the plant absorbs it through the roots, and from here the plant distributes it throughout its organs where insecticidal concentrations are attained. Carbofuran also has contact activity against pests.

A. Four stereoisomers
B. An enzyme
C. Insecticidal concentrations
D. An insecticide and as molluscicide
E. A systemic insecticide
F. None of the Above

9. Diazinon kills insects by_____, an enzyme necessary for proper nervous system function. Diazinon has a low persistence in soil. The half-life is 2 to 6 weeks. The symptoms associated with diazinon poisoning in humans include weakness, headaches, tightness in the chest, blurred vision, nonreactive pinpoint pupils, excessive salivation, sweating, nausea, vomiting, diarrhea, abdominal cramps, and slurred speech.

A. Four stereoisomers
B. Inhibiting acetylcholinesterase
C. Insecticidal concentrations
D. An insecticide and as molluscicide
E. Nicotine-based, systemic insecticide
F. None of the Above

10. Imidacloprid is a nicotine-based, systemic insecticide, which acts as a neurotoxin and belongs to a class of chemicals called the_____.

A. Four stereoisomers
B. Neonicotinoids
C. Insecticidal concentrations
D. Molluscicide
E. Nicotine-based, systemic insecticide
F. None of the Above

11. Malathion is a pesticide that is widely used in agriculture, residential landscaping, public recreation areas, and in public health pest control programs such as mosquito eradication. In the US, it is the most commonly used_____.

A. Four stereoisomers
B. Organophosphate insecticide
C. Insecticidal concentrations
D. Bird repellent
E. Nicotine-based, systemic insecticide
F. None of the Above

12. Methiocarb is a chemical mainly used as a bird repellent, as an insecticide and as molluscicide. It is toxic to humans, not listed as_____, is toxic to reproductive organs, and a potent neurotoxin.

A. Four stereoisomers
B. An enzyme
C. Insecticidal concentrations
D. A carcinogen
E. Nicotine-based, systemic insecticide
F. None of the Above

13. Permethrin is_____. It is available in dusts, emulsifiable concentrates, smokes, ULV concentrates, and wettable-powder formulations.

A. Four stereoisomers
B. A broad-spectrum pyrethroid insecticide
C. Insecticidal concentrations
D. An insecticide
E. Systemic insecticide
F. None of the Above

14. Resmethrin is _____with many uses, including control of the adult mosquito population. The resmethrin molecule has four stereoisomers determined by cis-trans orientation around a carbon triangle and chirality.

A. Four stereoisomer
B. An enzyme
C. Insecticidal spray
D. An insecticide
E. A pyrethroid insecticide
F. None of the Above

15. Early in the colony cycle, the queen bumble bee compensates for potential reproductive competition from workers by suppressing _____by way of physical aggression and pheromonal signals. Thus, the queen will usually be the mother of all of the first males laid.

A. Their egg-laying
B. Pollen collecting
C. Honey production
D. The first males
E. Stinging threat
F. None of the Above

Topic 12 Bee-Related Inspections Section Post Exam

1. For the safety of the inspector and the hive, in-hive inspections should **NOT** be attempted by an inspector if the inspector does not have experience with handling bee colonies. Bees, hives, frames, etc., must be handled by the beekeeper, an accompanying state apiarist, or an inspector with knowledge of bee colonies and/or beekeeping training. _____should be properly dressed with bee protective clothing/attire to minimize the risk of bee stings regardless of whether they personally handle a hive.

A. Beekeepers
B. Workers
C. Employees
D. Honey production handlers
E. Inspectors
F. None of the Above

2. To determine how a bee hive or colony was exposed to _____, the inspector must rely on additional observations or sample collection from the hive, the site where the bees died, areas adjacent to the bee hive, etc.

A. Chance of vandalism
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

3. _____should be collected from fresh honey in the top of the hive and pollen samples should be collected from uncapped (i.e., recently collected) pollen chamber near the brood chamber. Brood chamber, wax and other areas of the hive may contain residues collected over time.

A. Honey samples
B. Brood chamber
C. Pollen
D. Honey production
E. Brood wax
F. None of the Above

4. When sampling pollen and/or honey from comb, care should be taken not to include wax since wax can contain a different spectrum of pesticides than what may actually be present in pollen or honey. _____is generally dark brown to black. Honey wax is pale and light colored.

A. Unique batches
B. Brood chamber
C. Pollen
D. Honey production
E. Brood wax
F. None of the Above

5. Keep in mind that when sampling pollen from the comb, bees do not typically store pollen in_____. Pollen collected from a number of floral sources over time may be stored in the same cell of the comb.

A. Unique batches
B. Brood chamber
C. Pollen
D. Honey production
E. Brood wax
F. None of the Above

6. Prior to conducting an inspection related to bee deaths, the inspector should contact the laboratory that will analyze_____.

A. Any physical samples collected
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

7. _____may be located on wooden pallets to facilitate transport or to ready colonies for deployment to pollination locations; these colonies also tend to be of relatively uniform dimensions in order to facilitate stacking during transport. For colonies involved in honey production, the number of “supers” on the colony is based on the ability of that colony to produce honey.

A. Migratory colonies
B. Brood chamber
C. Pollen
D. Honey production
E. Nutritional and energy needs
F. None of the Above

8. Bee death may also be caused by exposure to pesticides. _____may occur through drift of pesticides from aerial or ground applications immediately adjacent to where colonies are located and/or to areas where bees may be foraging for food and/or water.

A. Chance of vandalism
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. Colony exposure
F. None of the Above

9. While bees will forage to meet the nutritional and energy needs of the colony and typically select forage that represents a preferred source of both pollen and nectar, they may also forage on less preferred sources of _____ based on availability.

A. Beekeeper
B. Brood chamber
C. Pollen
D. Honey production
E. Nutrition and water
F. None of the Above

10. Apiary locations are typically well hidden to limit the _____.

A. Chance of vandalism
B. Exposure to pesticides
C. Bee deaths
D. A different spectrum of pesticides
E. A particular pesticide
F. None of the Above

Topic 13 Wasp Identification

10 final exam questions. (s) Means answer can be singular or plural.

1. The Blue Mud Wasp is another solitary wasp less common but present in our area. This wasp seems incapable of building her own mud nest, but is able to repair and use abandoned nests. The _____ is at the top of her menu.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Black Widow spider
E. D. (formerly known as V.) maculata
F. None of the Above

2. The social wasps can be fractured into 2 groups, the Yellowjackets / Hornets and_____.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. D. (formerly known as V.) maculata
F. None of the Above

3. These wasps tend to be medium sized and black with jagged bands of bright yellow—or white in the case of the aerial-nesting_____—on the abdomen and have a very short, narrow “waist,” the area where the thorax attaches to the abdomen.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Digger bees and Andrenids
E. D. (formerly known as V.) maculata
F. None of the Above

4. V. vulgaris ranges across Canada and the northeastern United States. Common in higher elevations, it nests in shady evergreen forests around parks and camps in the western mountains and the eastern Appalachians. This species also is _____.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. D. (formerly known as V.) maculata
F. None of the Above

5. The Eastern yellowjacket sometimes nests in building wall voids. Most yellowjackets have very slightly barbed stingers but the sting will not set in the victim's tissue like the barbed stinger of the honey bee. The stinger of _____, however, often sticks and when the insect is slapped off, the stinger may remain.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Andrenids
E. D. (formerly known as V.) maculata
F. None of the Above

6. _____may be active in protected voids into November and December when outside temperatures are not severe.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. Colonies of this yellowjacket
F. None of the Above

7. Common areas their nests can be found include on walls or under eaves of homes and other buildings. Nest construction begins in the Spring and construction and maintenance continues as long as the colony continues to grow. _____gather fibers form old decaying wood or dead, dry plants, chew them up and mix the debris with water to make their grey paper nest. Populations in these nests rarely ever exceed 200.

A. V. maculifrons
B. V. vulgaris
C. Dauber(s)
D. Wasps
E. D. (formerly known as V.) maculata
F. None of the Above

8. Entrance holes sometimes have bare earth around them. Entrance holes in structures are usually marked by_____.

A. Fast flying workers entering and leaving
B. Bare earth
C. Reddish dust
D. Rapidly lower nest temperature
E. Paralyzed tarantula
F. None of the Above

9. When possible, treat ground and aerial nests after dark [Workers are in the nest at that time]. More often than not, because of_____, treatment will be scheduled for the daytime.

A. The dark
B. Bare earth
C. Toxic dust
D. Rapidly lower nest temperature
E. Traditional work schedules
F. None of the Above

10. Umbrella wasps are also commonly referred to as paper wasps. These wasps have been named _____because their nests are the shape of an inverted umbrella. They usually have small nests and are usually inhabited by about 250 wasps.

A. V. maculifrons
B. Female tarantula hawk
C. Dauber(s)
D. Paper wasp(s)
E. Umbrella wasps
F. None of the Above

Topic 14 Common Crop Insects and Pesticide Controls

18 final exam questions. (s) Means answer can be singular or plural.

1. Cotton aphid is_____, and adults may be winged or wingless.

A. Most destructive
B. Controllable
C. Impressive in reproductive capacity
D. Highly variable in body size and color
E. Much more restrictive in their diet choice
F. None of the Above

2. Wireworms are the larval form of a _____. After a short pupation, adults emerge and females lay about 175 eggs. To escape the hot, dry summer and cold winter, wireworms burrow deep into the soil.

A. Wireworms
B. Sweetpotato Weevil
C. Dark-brown click beetle
D. Silverleaf Whitefly
E. Adults and larvae
F. None of the Above

3. The orange-brown_____, which take 4 to 5 years to mature, are very destructive when they feed on developing potato tubers, seed pieces, and roots. Young potato tubers injured by wireworms often become misshapen.

A. Wireworms
B. Sweetpotato Weevil
C. Dark-brown click beetle
D. Larvae
E. Adults and larvae
F. None of the Above

4. _____are antlike and very small with dark metallic blue heads and wings and reddish orange bodies and legs. Adults and larvae feed on storage roots both before and after harvest.

A. Adult weevils
B. Sweetpotato Weevil
C. Dark-brown click beetle
D. Silverleaf Whitefly
E. Adults and larvae
F. None of the Above

5. Nymphs and adults of wingless cotton aphids vary in color from yellow to green to nearly black. The darker forms tend to be _____.

A. Most destructive
B. A problem in cool areas
C. Darker
D. Long-lasting protection
E. Substantially larger
F. None of the Above

6. Green peach aphid feeds on hundreds of host plants in over 40 plant families. However, it is only the viviparous (giving birth to living young) summer stages that _____; the oviparous (egg producing) winter stages are much more restrictive in their diet choice.

A. Most destructive
B. Controllable
C. Impressive in reproductive capacity
D. Highly variable in body size and color
E. Feed so widely
F. None of the Above

7. _____are especially popular at planting time, most of which provide long-lasting protection against aphid population buildup during the critical and susceptible early stages of plant and some of which provide protection for 3 months.

A. Insect growth regulator(s)
B. Organophosphates
C. Pyrethroids
D. Hormonal IGRs
E. Systemic insecticide applications
F. None of the Above

8. Aphids are also_____. In broccoli and cauliflower, the presence of aphids in the heads makes the crop unmarketable.

A. An important pest of cole crops
B. Beneficial
C. Impressive reproducers
D. May be winged or wingless
E. Are much more restrictive in their diet
F. None of the Above

9. Early damage to the growing point of a cabbage plant distorts the head. _____ can also be a problem on older cabbage plants.

A. Striped and Spotted Cucumber Beetle
B. Spotted Cucumber Beetle
C. Thrips
D. Tomato Pinworm
E. Aphids
F. None of the Above

10. _____ appear first on borders of the field and will generally be found there if they are present in the field at all. Scouting should take place at least twice a week and should cover all quadrants of the field.

A. Striped and Spotted Cucumber Beetle
B. Spotted Cucumber Beetle
C. Thrips
D. Tomato Pinworm
E. Aphids
F. None of the Above

11. Cabbage maggots destroy the roots, particularly of seedlings, causing the plant to become stunted and wilt. In addition to the root damage, the plants may become more susceptible to diseases as pathogens enter through lesions left by the maggots. _____are more likely to be a problem in cool areas and in winter or spring crops.

A. Diamondback Moth Larvae
B. Imported Cabbageworm
C. Colorado Potato Beetle
D. Squash Bug
E. Cabbage maggots
F. None of the Above

12. Rove beetles (ground beetles) are an important natural enemy of _____. They eat eggs and parasitize pupae. Two nematode species ('Hb' and 'Hc') reportedly attack maggot populations in the soil, but their effectiveness has not been tested in controlled experiments.

A. Fall Armyworm
B. True armyworm
C. Vegetable Leafminers
D. Mexican Bean Beetle
E. Tomato caterpillar pests
F. None of the Above

13. Unlike the_____, which feeds primarily on corn and other grasses, the fall armyworm will feed on just about any plant. Damage is especially severe to late sweet corn and field corn, but the fall armyworm will eat kale, collards, turnip greens, cabbage, broccoli, spinach, snap beans, tomatoes, soybeans, potatoes, sweet potatoes, cucumbers, and many ornamentals.

A. Fall Armyworm
B. True armyworm
C. Vegetable Leafminers
D. Mexican Bean Beetle
E. Tomato caterpillar pests
F. None of the Above

14. Flea beetle attack is sudden and can destroy young plants, so fields should be scouted daily. Three to four generations can be produced annually. _____is effective, since flea beetles migrate in from weedy areas.

A. Killing larvae
B. Damage
C. Spray application
D. Leaving their overwintering sites from April through July
E. The only feasible approach to control
F. None of the Above

15. Pickleworm populations can be lowered by planting early, plowing deeply before planting and rotating crops. Chemical control measures must be started as soon as pickleworm adults appear, since insecticides cannot reach _____inside the flower and developing fruit.

A. Pepper Maggot
B. Pickleworm
C. Squash Vine Borer
D. Squash Bug
E. Larvae
F. None of the Above

16. Diamondback populations are also sensitive to the weather. Dry weather necessitates higher insecticide rates and scheduling of sprays every 4 days, while heavy downpours can reduce diamond-back moth and larvae populations, decreasing_____. Several Bt formulations can be used on diamondback moths.

A. Rotation
B. The need to apply insecticides
C. Biological controls
D. Skeletonized with a lace-like appearance
E. Deposit brownish-red eggs in clusters
F. None of the Above

17. Corn earworm has a wide host range; hence, it is also known as "tomato fruitworm," "sorghum headworm," "vetchworm," and "_____." In addition to corn and tomato, perhaps its most favored vegetable hosts, corn earworm also attacks artichoke, asparagus, cabbage, cantaloupe, collard, cowpea, cucumber, eggplant, lettuce, lima bean, melon, okra, pea, pepper, potato, pumpkin, snap bean, spinach, squash, sweet potato, and watermelon.

A. Flamer
B. Corn Earworm
C. Cowpea Curculio
D. European Corn Borer
E. Vetchworm
F. None of the Above

18. _____ puncture developing pods with their snouts as they feed. Females lay a single egg in some of the feeding wounds. About 4 days later, brown-headed grubs emerge and infest the seeds of beans and peas.

A. Flamers
B. Corn Earworms
C. Cowpea Curculios
D. European Corn Borers
E. Weevils
F. None of the Above

Topic 15 Cotton Insect and Related Pest Identification

4 final exam questions. (s) Means answer can be singular or plural.

1. Two species of loopers are commonly found in cotton, the _____and the soybean looper.

A. Shield bug(s)
B. Soybean looper(s)
C. Larvae(s)
D. Cabbage looper
E. Aphid(s)
F. None of the Above

2. _____are very small, but when high numbers occur they can cause damage to the leaves known as "stippling," which is a readily observed symptom of heavy mite infestation.

A. Shield bug(s)
B. Soybean looper(s)
C. Larvae(s)
D. Two-spotted spider mite(s)
E. Spider mite(s)
F. None of the Above

3. The idiomatic term "stink bug" is also applied to distantly related species such as Boisea trivittata, the "boxelder bug", and entirely different types of insects such as beetles in the genus Eleodes ("_____"). In its native range, it feeds on a wide variety of host plants. Fruits attacked include apples, peaches, figs, mulberries, citrus fruits and persimmons.

A. Shield bug(s)
B. Pinacate beetle(s)
C. Larvae(s)
D. Stink bug(s)
E. Boxelder bug(s)
F. None of the Above

4. Heavy _____ populations create the same symptoms as observed on seedling cotton (cupped, crinkled leaves, honeydew accumulations, sooty mold, and in extreme cases, limited defoliation).

A. Shield bug(s)
B. Soybean looper(s)
C. Larvae(s)
D. Two-spotted spider mite(s)
E. Aphid(s)
F. None of the Above

Topic 16 - 1 node Ant Identification and Control Section Post Exam

6 final exam questions. (s) Means answer can be singular or plural

1. _____ can again be a useful tool in eradicating inside-the-home ant nests, although baits may not work as well with carpenter ants as with the other species mentioned.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Pressure or combination pressure/diffusion treatment
F. None of the Above

2. Drench colonies living in the soil or under items on the exterior with_____. With mulch, be sure to rake it back to get good penetration where colonies may be thriving. Follow up with a broadcast application of granule such as Talstar G.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Demand, Suspend, or Tempo
F. None of the Above

3. If you know with some certainty where the colony is living inside, then you can treat them directly by drilling a small hole into the wall void at the base (directly above the baseboard) and injecting a dust, such as _____.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Pressure or combination pressure/diffusion treatment

4. Carpenter ants are most active in the evening hours, foraging for all kinds of food, both inside the house and outside. By following the ants, you may be able to tell where the nest is. Because carpenter ants keep the tunneled galleries very clean and push the _____out small holes in the wood, a small, fresh pile of sawdust under the nest timber is the usual sign of an active carpenter ant nest.

A. Red Imported Fire Ant(s)
B. Argentine ant(s)
C. Carpenter ant(s)
D. Red Harvester Ant(s)
E. Ghost Ant(s)
F. None of the Above

5. Workers follow scent trails along the edges of structures for protection. They can often be spotted trailing under the edge of carpets and up the sides of the building, searching for _____.

A. Scent trails
B. Inside-the-home ant nests
C. Mounds of soft soil
D. Nest(s)
E. Brood chamber(s)
F. None of the Above

6. Red Harvester Ants can be aggressive and have a painful sting that spreads through the lymph nodes, sometimes causing reactions, especially in animals allergic to their venom. They can also bite ferociously.

Over the years, their numbers have been declining, and this has often been attributed to competition for food with the invasive Red Imported Fire Ant and the _____.

A. Red Imported Fire Ant(s)
B. Argentine ant(s)
C. Carpenter ant(s)
D. Red Harvester Ant(s)
E. Ghost Ant(s)
F. None of the Above

Topic 17 - 2 node Ant Identification and Control Section Post Exam

6 final exam questions. (s) Means answer can be singular or plural.

1. Unlike most other wood preservatives and organic insecticides that penetrate best in dry wood, borates are_____—they penetrate unseasoned wood by diffusion, a natural process. Wood moisture content and method and length of storage are the primary factors affecting penetration by diffusion. Borate information is also found on page 416.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Diffusible chemicals
F. None of the Above

2. Red imported fire ants (RIFA) are medium sized ants that build _____ rarely larger than 18" in diameter. The ants emerge out aggressively when they are disturbed and sting. Their sting usually leaves a white pustule the next day.

A. Scent trails
B. Inside-the-home ant nests
C. Mounds of soft soil
D. Nest(s)
E. Brood chamber(s)
F. None of the Above

3. If the nest is exposed (e.g. due to remodeling or reroofing) you can use_____, such as bifenthrin, cyfluthrin, deltamethrin, or permethrin. Spray the insecticide directly into as much of the nest as possible. The more of the colony that is exposed, the better your chance of destroying it. It is necessary to anticipate an ant colony and have a product ready at the start of construction. Once the nest is exposed, that portion of the colony will try to relocate to protect themselves.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. A liquid or aerosol ready-to-use insecticide
E. Pressure or combination pressure/diffusion treatment
F. None of the Above

4. Application methods include momentary immersion by_____; pressure or combination pressure/diffusion treatment; treatment of composite boards and laminated products by treatment of the wood finish; hot and cold dip treatments and long soaking periods; spray or brush-on treatments with borate slurries or pastes; and placement of fused borate rods in holes drilled in wood already in use. Borate information is also found on page 416.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Bulk dipping
F. None of the Above

5. Simply picking up rocks and debris around the house will also help. If the ants are nesting in the house, the wall voids will need to be dusted with _____ in areas where ant baits are not to be used. Ant infestation are not easy to control and different strategies should be used depending on nest location and food preferences of the ants.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Demand, Suspend, or Tempo
F. None of the Above

6. In a process known as trophallaxis, one ant regurgitates its stomach contents to another ant. This food sharing behavior enables the bait to be spread throughout the colony before the _____takes effect.

A. Talstar G
B. Delta Dust, Drione, or Borid Turbo
C. Drione
D. Bifenthrin, cyfluthrin, deltamethrin, or permethrin
E. Toxicant
F. None of the Above