Public Health Training Network

SELF-STUDY COURSE 3010-G

Lesson 10

Vector and Weed Control and Pesticide Use

Environmental Health Sciences
Self-Study Course SS3010

Lesson 10: *Vector and Weed Control and Pesticide Use*

I. Lesson Consists of

A. Part I: 25 multiple choice questions
B. Part II: 20 multiple choice questions
C. Part III: 25 true-false questions

II. Reference

Salvato, J. A. *Environmental Engineering and Sanitation.* 4th ed. New York: John Wiley & Sons, 1992.

III. Topics and Reading Assignments

	(Page No.)
1. Chapter 10 - Vector and Weed Control and Pesticide Use	
A. Integrated Pest Management	1099 to 1100
B. Pesticides	1100 to 1107
C. The Housefly	1107 to 1112
D. Mosquito Control	1112 to 1123
E. Control of Miscellaneous Arthropods	1123 to 1137
F. Control of Rats and Mice	1137 to 1148
G. Pigeon Control	1148 to 1150
H. Bat Control	1150 to 1151
I. Control of Poison Ivy, Poison Oak, and Poison Sumac	1151 to 1153
J. Control of Ragweed and Other Noxious Weeds	1153 to 1157
2. Hantavirus Illness in the Southwest, CDC document 310031	Chapter 1, read all

IV. Suggested Supplementary Readings

Pfadt, R. E., *Fundamentals of Applied Entomology*, fourth ed., New York: MacMillan, 1985
Pocket Guide to Pest Management. DVECC publication no. 008-045-00022-4. (Available from Superintendent of Documents; U.S. Government Printing Office Book Store; 275 Peachtree Street, N.E.; Atlanta, GA 30303.)

V. Objectives

Upon successful completion of Lesson 10, students should be able to correctly

- identify arthropods of public health importance, their life cycles, breeding habits, eating characteristics, and diseases that they transmit
- identify rodents of public health importance, their life cycles, breeding habits, eating characteristics, and diseases that they transmit
- determine the chemical, physical, naturalistic, and biological control methods for insects and rodents of public health importance
- identify the various methods of pesticide application, and their appropriate use according to pesticide groupings and legal controls
- demonstrate understanding of the economic and aesthetic problems associated with pigeons and bats and the appropriate control measures needed
- utilize proper control measures for poison ivy, poison oak, and poison sumac including eradication and other remedies
- demonstrate understanding of how and why to control ragweed and other noxious weeds.

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Lesson 10: *Vector and Weed Control and Pesticide Use*

Part I: Multiple Choice

1. When first considering the control of houseflies, roaches, and rats, the primary emphasis should be on

   a. pesticides that are not harmful to children and pets
   b. basic community environmental sanitation to eliminate the conditions that make possible their survival and reproduction
   c. types of diseases that could possibly be transmitted and the signs and symptoms of each
   d. their resistance to various pesticide groupings.

2. The objective(s) in pest control should be

   a. integrated pest management involving the use of a combination of educational, cultural, biological, physical, chemical, and legal measures, as appropriate
   b. to control the life cycles and conditions favorable to growth of pests so they will not interfere or harm humans and the environment
   c. to establish a worldwide network of professionals dedicated to the elimination of pest nuisance and annoyance
   d. all of the above.

3. Rodents are the primary reservoir/host of the hantavirus. In particular, _____ appears to be the primary reservoir for the newly recognized (1993) hantavirus in the southeastern United States.

   a. rat.
   b. rabbit
   c. house mouse
   d. deer mouse.

4. The Federal Insecticide, Fungicide, and Rodenticide Act

   a. requires that an Environmental Protection Agency registration number be put on all pesticide products
   b. provides for registration of pesticides manufacturing and formulating
   c. provides for *State* certification of applicators who are qualified to use certain restricted pesticides
   d. all of the above.

5. A pesticide that _____ is referred to as a "Restricted Classification" pesticide and is generally not available to the homeowner

   a. is highly toxic
   b. requires special knowledge for application
   c. requires special equipment for application
   d. all of the above.

6. Bacteria may be carried in the digestive system of the housefly for as long as

   a. 1 week
   b. 3 months
   c. 4 weeks
   d. 2 days.

7. Malaria prevention programs have been losing their effectiveness in many countries mainly because of

   a. inadequate funding and research
   b. adaption of mosquitoes to new environments
   c. resistance to certain insecticides and resistance of Plasmodium falciparum parasites to drugs used to prevent and treat malarial infections
   d. all of the above.

8. Rocky Mountain spotted fever is transmitted by

   a. cockroaches
   b. dog ticks
   c. mites
   d. skunks

9. A "chigger" is the larval stage of the

   a. mite
   b. mosquito
   c. louse
   d. flea.

10. Pediculosis is an infestation of

   a. chiggers
   b. mites
   c. lice
   d. roaches.

11. Storage of clothing, bedding, and any other lice infested items for at least _____ will cause the lice to die of starvation.

   a. 10 days
   b. 3 days
   c. 6 months
   d. 30 days.

12. _____ is an infectious disease of the skin caused by burrowing of the female mite into the skin where it deposits its eggs.

   a. tularemia
   b. scabies
   c. psittacosis
   d. pediculosis.

13. Wasps are usually attracted to

   a. bright-colored clothing
   b. hair oils
   c. smooth-textured clothing
   d. all of the above.

14. The peak seasons for rats to breed in temperate zones are

    a. spring and fall
    b. summer and winter
    c. winter and spring
    d. fall and summer

15. Rattus norvegicus is also referred to as the

    a. sewer rat
    b. norway rat
    c. house rat
    d. all of the above.

16. The first step in a rat control program is

    a. a baiting program
    b. code enforcement
    c. a trapping program
    d. a community survey.

17. Rattus Rattus is also referred to as the

    a. house rat
    b. norway rat
    c. roof rat
    d. all of the above.

18. An adult rat requires approximately _____ of food per day.

    a. 1 pound
    b. 1 ounce
    c. 6 ounces
    d. 8 ounces.

19. In order to control rats at open dumps. a poison-bait application program should be started _____ before a site is abandoned or converted and before earthmoving equipment is brought to the site.

    a. 10 days
    b. 3 days
    c. 3 weeks
    d. 3 months.

20. The smallest diameter hole through which an average house mouse can pass is

    a. 1/4 inch
    b. 1/2 inch
    c. 3/4 inch
    d. 1 inch.

21. An example of a single dose rodenticide is

    a. red squill
    b. warfarin
    c. malathion
    d. chlordane.

22. The key to an effective, long-term, rodent control program is

    a. poisoning
    b. community sanitation
    c. trapping
    d. community sewage treatment.

23. A female rat becomes sexually mature in

    a. 2 to 3 months
    b. 2 to 3 weeks
    c. 1 to 2 months
    d. 4 to 6 weeks.

24. The Norway rat has a normal home range of

    a. 100 to 150 feet
    b. 300 to 500 feet
    c. 1 block
    d. 3 to 5 blocks.

25. A single pair of rats are capable of producing _____ litters of young per year

    a. 4 to 7
    b. 3 to 6
    c. 1 to 2
    d. 8 to 12.

Part II: Multiple Choice

1. An example of an anticoagulant rodenticide is

   a. red squill
   b. cyanide gas
   c. warfarin
   d. malathion.

2. Psittacosis/Ornithosis is spread by

   a. bats
   b. shellfish
   c. rodents
   d. pigeons.

3. A pigeon control program to eliminate nesting places should be preceded by

   a. baiting the area
   b. ectoparasite control
   c. trapping and humanely disposing of pigeons
   d. installing ground electrical wires.

4. Bat-proofing should be done in the _____, when bats are hibernating in caves

   a. late fall through winter
   b. late winter through spring
   c. early spring only
   d. midsummer through early fall.

5. Bats are threat to humans because they carry

   a. encephalitis
   b. rabies
   c. psittacosis
   d. pediculosis.

6. The best preventive measure for poison ivy, poison oak, and poison sumac is

   a. recognition of the plant and its avoidance
   b. wearing clothing that appropriately covers the body
   c. applying an effective weed killer
   d. none of the above.

7. The poison of poison ivy, oak, and sumac is an oleoresin that is found in all parts of the plant **except** the

   a. leaves
   b. flowers
   c. wood
   d. bark.

8. The symptoms from contact with poison ivy, oak, and sumac normally appear after

   a. 8 to 10 days
   b. a few hours to 7 days
   c. 10 to 15 days
   d. none of the above.

9. In general, there are three kinds of weeds. These are

   a. srads, clowds, and mullahs
   b. bronzes, clorles, and direals
   c. annuals, biennials, and perennials
   d. milkweeds, bindweeds, and perennials.

10. The control of weeds is accomplished by

    a. preventing the spread of weeds into new areas
    b. destruction of top weeds and underground parts of weeds
    c. destruction of weed seeds in the soil
    d. all of the above.

11. Soil sterilants are a type of herbicide which are

    a. absorbed by the plant root system
    b. applied to the leaves of the plant
    c. not effective while plant growth and development are taking place
    d. both b and c above.

12. Which of the following **is not** a condition that encourages the growth of weeds?

    a. soil abuse
    b. over cultivation
    c. deforestation
    d. none of the above.

13. Relief from hay fever may be obtained by

    a. moving to a pollen-free area
    b. acquired immunity
    c. air conditioning and air purification with appropriate filters
    d. all of the above.

14. Hay fever is correctly referred to as

    a. weedsidsis
    b. pollenosis
    c. asthma
    d. sinusitis.

15. A mature ragweed plant can produce up to _____ pollen grains in one season

    a. 1 hundred
    b. 1 million
    c. 1 billion
    d. 1 trillion.

16. A pollen count index of less than _____ pollen grains/m^3 of air in a 24-hour period is considered practically free of ragweed contamination

    a. 1
    b. 5
    c. 20
    d. 40

17. Most ragweed pollen grains settle to the ground within about

    a. 48 hours after being airborne
    b. 200 feet of their source
    c. 24 hours after being airborne
    d. 500 feet of their source.

18. The most practical way to control hay fever is to

    a. treat the environment
    b. treat the patient
    c. relocate the patient
    d. all of the above.

19. Which of the following has been proven to be most effective for controlling ragweed?

    a. Spraying in early spring
    b. Spraying in early or mid summer
    c. Spraying in early or mid spring
    d. Spraying in early fall

20. An effective pest management and weed control program focuses on the

    a. strategic application of pesticides and herbicides with greatest toxicity
    b. use of a single pesticide or herbicide nontoxic to humans and pets
    c. integration of a combination of methods
    d. ability to acquire federal and state funding.

Part III: True-False

Mark answer sheet under column "A" if the statement is true, or under column "B" if the statement is partially or totally false.

1. The full potential of naturalistic and source-reduction measures should be applied before considering chemical means for controlling arthropods, rodents, and weeds.

2. DDT has been banned for use in all countries except parts of Africa, Sweden, Great Britain, and all South American Countries.

3. The World Health Organization considers DDT irreplaceable in public health at the present time for control of some of the most important vector-borne diseases of humans.

4. For a pesticide to be permitted for application on a raw agricultural food or feed, the residue must exceed the tolerance established for the product by the Department of Health and Human Services under the conditions of use.

5. In accordance with Food Additive Regulations, a pesticide added intentionally or incidentally to a processed food is considered an additive.

6. The housefly consumes only liquids, and therefore, must transform all other substances to the liquid state before digestion.

7. The prime feeding time of the anopheles mosquito is usually around midday.

8. Encephalitis has replaced malaria as the major mosquito-borne disease in North America.

9. Encephalitis is not communicable directly from person to person, but only by the bite of infected mosquitoes.

10. The female and male mosquito feed only on the blood of humans and animals.

11. Because the pesticides lindane and malathion do not stain they are excellent liquid insecticide sprays to use for controlling bedbugs in mattresses or other bedding.

12. Lice require human blood to live.

13. Blackflies are disease vectors for onchocerciasis.

14. Yellow jackets usually build their nests in the ground.

15. Rats have an extremely keen sense of sight but very poor taste and smelling ability.

16. Sodium fluoroacetate, also known as "1080," is the most effective fast-acting rodenticide available for use throughout the United States.

17. Bats serve a useful purpose by keeping down the number of insects.

18. The rabies virus may be contracted from the aerosol of an infected animal's urine, entering through the nose or mouth.

19. Bat-proofing should not be conducted in late spring or early summer because baby bats can be trapped inside.

20. The poison found in poison ivy, oak, and sumac is extremely volatile.

21. Items such as tennis balls, golf balls, gloves, and auto tires that come into contact with poison ivy, oak, and sumac may spread the poison as well as physical contact with the plants.

22. Burning off poisonous plants is not advisable because smoke will carry particles long distances and spread the infection.

23. The best time to apply a herbicide is in the late spring or early summer when plant growth and development is taking place.

24. Hormone or growth regulators also known as systematic herbicides are toxic to the plant living cells they cover and are usually absorbed through the stem of the plant upon contact.

25. Some of the main sources of pollen are trees in the summer, grasses in the spring, and weeds in the winter.

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Answer Keys

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Environmental Health Sciences
Answer Keys (Page No.)

***Lesson 10*: Part I**

1. B (1099)	6. C (1108)	11. D (1129)	16. D (1137)	21. A (1143)
2. A (1099)	7. D (1113)	12. B (1129)	17. C (1137)	22. B(1137-1148)
3. D (1099)	8. B (1134)	13. D (1136)	18. B (1140)	23. A (1137)
4. D (1104)	9. A (1125)	14. A (1137)	19. A (1145)	24. A (1137)
5. D (1104)	10. C (1127)	15. D (1137)	20. B(1147-1148)	25. A (1137)

Part II

1. C (1146)	5. B (1150)	9. C (1153)	13. D (1154)	17. B (1155)
2. D (1148)	6. A (1152)	10. D (1153)	14. B (1154)	18. B (logic)
3. B (1148)	7. C (1151)	11. A (1153)	15. C (1155)	19. C (1156)
4. A (1150-1151)	8. B (1153)	12. D (1153)	16. B (1155)	20. C (1099)

Part III

1. A; true (1099)	6. A; true (1108)	11. B;false (1124)	16. B:false (1142)	21. A;true (1151)
2. B; false (1101)	7. B: false (1114)	12. A;true (1127)	17. A;true (1150)	22. A; true (1152)
3. A; true (1101)	8. A; true (1114)	13. A;true (1124)	18. A;true (1150)	23. B:false (1153)
4. B; false (1104)	9. A; true (1114)	14. A;true (1136)	19. A;true (1151)	24. B;false (1153)
5. A; true (1104)	10. B;false (1115)	15. B;false (1137)	20. B;false (1151)	25. B;false (1154)