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## **PESTICIDES AND PESTICIDES LEGISLATION**

### **Exercise 1**

1. Growers use pesticides with the purpose of reducing target pests to zero population levels. Is this possible or desirable?
2. What advantages has a systemic pesticide over other types of pesticides?
3. Is long residual effectiveness in a pesticide necessarily an attribute? Under what conditions could it present a hazard?
4. How may pheromones be used in insect control programs?
5. Why are pheromones generally specific for a species of insects?

### **Exercise 2**

1. In what ways may pesticides be hazardous to humans?
2. What is the meaning of LD<sub>50</sub>? LC<sub>50</sub>?
3. Differentiate between toxicity and hazard in relation to pesticides.
4. Why has the use of some pesticides been banned? Restricted?
5. Is residual persistence a desirable characteristic in a pesticide?
6. What undesirable characteristics do the organochlorines have? The cyclodienes? The organophosphates? The organocarbamates?
7. In what ways may fumigants be used in pest control?
8. Discuss the advantages and disadvantages of using fumigants, where applicable.
9. Explain the four categories of pesticides toxicity (toxicity ratings).

### **Exercise 3**

1. Why do pyrethrins or pyrethroids generally require synergists?
2. What problems limit the use of dust formulations?
3. How are granular formulations used?
4. What are safer as foliage sprays, wettable powders or emulsifiable concentrates?

5. What advantages have poison baits over sprays?
6. What types of insects and diseases can be prevented from damaging seeds by chemical seed treatments?
7. Does seed treatment alone ensure a crop free from pathogens that are carried on or in the seed?
8. What may happen when two incompatible pesticides are mixed in a spray solution and sprayed on plants?
9. Discuss the problems caused by the exclusive heavy use of pesticides.
10. Explain biomagnification of a pesticide in food chain.
11. Explain the mechanism of pesticide resistance build-up in an insect population.

#### **Exercise 4**

1. What pesticide name is up to mean more to a grower, the chemical name, the common name or the trade name?
2. Why is it important to act quickly when pesticide poisoning is suspected?
3. What types of pesticides require protective clothing and respirators?
4. What are the liquid absorbent items of clothing such as gloves, hats or shoes dangerous for the operator to wear when applying organophosphates?
5. What types of respirator should one use in indoor fumigation with a highly toxic fumigant? In outdoor spraying with a highly toxic organophosphate?

#### **Exercise 5**

1. What are the advantages of dusting over spraying? Vice versa?
2. What are the limitations of dusting for crop pest control?
3. Which will give the better coverage of heavy foliated plants – spraying or dusting?
4. What advantages has aerial application of chemicals over ground applications? Disadvantages?
5. Why is soil fumigation becoming more and more practical?
6. How useful is a fumigation chamber to a greenhouse operator? To a nursery stock grower?

#### **Exercise 6**

1. In what form are chemicals most effectively applied to plants, taking into consideration coverage and retention?
2. What are the advantages of using equipment that allows complete coverage of an orchard or field in a day or two?
3. What might growers do if individually they cannot afford to purchase an efficient sprayer, or if their fields are too small to warrant the purchase of such equipment?
4. How does one go about determining the efficiency of a machine?
5. Should a grower be able to inspect, remove and replace parts in his application equipment himself, or should he use the services of a qualified mechanic as we do with our automobiles?
6. Of what significance is pump capacity in a sprayer?
7. Discuss the usefulness of each of the four types of spray patterns that may be produced by using the proper nozzle.
8. Why should a sprayer be cleaned carefully after each day's work?
9. What are the dangers of using 2, 4-D in a sprayer also employed for other purposes?
10. What factors should be considered while a tree is being sprayed?
11. Explain the techniques of spraying a tree from the ground with the wind from the south to avoid being covered in spray.
12. Why do very few growers spray trees from the ground?
13. Under what conditions might dusting be as effective as spraying?
14. In your opinion, what type of equipment can be relied on to give the best coverage of orchard trees? Row crops? Grain or forage crops? Forested areas?
15. What are the limitations of spray schedule?
16. If dripping from the foliage occurs in concentrate spraying, how should it be corrected?

### **Exercise 7**

1. Discuss the basic principles of insect pest control with insecticides.
2. Summarize the purposes for formulating insecticides.
3. Describe how the common formulations of insecticides are made.
4. Explain the need for various formulations of insecticides.
5. Describe the modes of action for the organochlorine, organophosphate, carbamate and synthetic pyrethroid insecticides.
6. Identify insecticide classifications based on the chemical structures of insecticides.
7. List several factors that influence efficacy.

8. Discuss the positive and negative aspects of insecticide utilization.
9. Discuss several factors that influence insecticide efficacy.
10. Clarify the meaning of selective insecticides.
11. Compare the value of selective versus broad spectrum insecticides.
12. Describe ways of achieving selective action with insecticides.
13. Discuss methods of improving selectivity of insecticides.
14. Outline the instructions provided on a typical insecticide label.
15. Write short notes on each of the following:-
  - (a) Insecticide application techniques.
  - (b) Toxicity of pesticides.