

Weed Management

Chapter 17

Answers to review questions

1) What is one definition of a weed?

A weed is a plant that is a hazard or a nuisance or one that causes injury to people, animals, or desired crops (p. 387).

2) Why do we have weeds?

Weeds are encouraged by the same gardening practices that create a favorable environment for garden plants (p. 388).

3) Why is it important to know the life cycles of weeds?

Annuals, biennials, and perennials require different control strategies (p. 389).

4) What resources do weeds compete for with garden crops and ornamentals?

- Light (p. 392)
- Nutrients (p. 392)
- Water (p. 392)

5) Name some weed control strategies.

- Prevention (pp. 393-394)
- Cultural control (pp. 394-396)
- Mechanical control (pp. 394-396)
- Chemical control (pp. 397-400)

6) list some cultural and mechanical strategies you currently use in your yard or garden.

- Examine plants brought into the garden.
- Rotate garden crops.
- Leave part of the garden fallow for a season.
- Remove weeds by hoeing, hand pulling, or rototilling.
- Grow plants close together to crowd out weeds.
- Start with transplants instead of seeds.
- Use mulches or landscape fabrics.
- Use drip irrigation systems to avoid watering weeds.

• Grow cover crops to smother winter weeds.

(continued)

*You may need to use other chapters, additional reference materials, or your own experience to **answer this question fully.**

Answers to review questions Chapter 17-Weed Management page 2

- Choose plants that will grow well in your environment.
- Provide proper care to keep plants growing vigorously.
- For lawns, fertilize, irrigate, and mow properly.
- Plant ground covers under woody landscape plants.

7) List some of the ways you could improve weed control in your yard or garden.

Any of the answers given for Question #6

8 What are some of the herbicides commonly used in woody landscapes?

- Dichlobenil (pp. 399. 401)

- Oryzalin (pp. 399, 401)
 - Trifluralin (pp. 399, 401)
 - Glyphosate (spot application) (pp. 399, 401)
- 9) Give an example of a systemic, nonselective, foliar-applied herbicide.
Glyphosate (Roundup and other trade names) (p. 399)
- 10) List some ways that weeds are dispersed.
- Equipment (p. 388)
 - Irrigation water
 - Nursery soil (p. 393)
 - Birds and animals (p. 388)
 - Wind (p. 393)
 - Humans (p. 388)

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Understanding Pesticides

Chapter 19

Answers to review questions

- 1) Pesticides can be grouped into types according to how they work. One type is a contact pesticide. What are three other types, and how do they work?
- *Stomach poisons* must be swallowed by the pest (p. 422).
 - *Systemics* function by entering and becoming distributed within a pest or within plants on which it feeds (p. 422).
 - *Translocated herbicides* move from the point of initial application to circulate throughout the plant, killing all parts of the plant (p. 422).
 - *Fumigants* are gases that kill when they are inhaled or otherwise absorbed by pests (p. 422).
- 2) One common pesticide formulation is an emulsifiable concentrate. What is a benefit of making a pesticide this way? What is at least one disadvantage?
- *Advantage*-They are easy to mix and use (p. 423).
 - *Disadvantages*-They penetrate the skin more readily and are, as a result, more dangerous to handle. They also can cause minor bronzing of light-colored fruit (p. 423).
- 3) Pesticide labels are important documents. List at least **10** things found on a label.
- Brand name (p. 424)
 - Type of formulation (p. 425)
 - Ingredient statement (p. 425)
 - Common name and chemical name (p. 425)
 - Net contents (p. 425)
 - Name and address of manufacturer (p. 425)
 - Registration number (p. 425)

- Establishment number (p. 425)
- Precautionary statements (p. 425)
- Environmental hazards (p. 425)
- Physical and chemical hazards (p. 425)
- Signal words and symbols (p. 425)
- Statement of practical treatment (p. 425)
- Directions for use (p. 425)
- Preharvest interval (p. 425)
- Misuse statement (p. 426)
- Storage and disposal directions (p. 426)

Answers to review questions Chapter 19-Understanding Pesticides page 2

4) Why should you always store pesticides in their original containers?"

- The original container is where the label is, which contains the product identification, use instructions, precautionary statements, and information needed in case of a spill or poisoning.
- Storing the product in a different container could cause its misuse.

5) Signal words give an idea of the relative toxicity of a pesticide. What are the signal words and what are their relative toxicities?

- "Caution" is the least toxic (p. 433).
- "Warning" is intermediate in toxicity (p. 433).
- "Danger" is the most toxic (p. 433).

6) What is integrated pest management?

Integrated pest management (IPM) provides a common-sense approach to pest control. It suggests that occasional pesticide use may be necessary, but that wise pesticide use should be coupled with appropriate cultural practices, alternative pest control methods, and encouragement of each pest's natural enemies. Cultural, biological, mechanical, and chemical (both organic and synthetic) methods of pest control are used (p. 433 and Chapter 20).

You may need to use other chapters, additional reference materials, or your own experience to answer this question fully.

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Integrated Pest Management

Chapter 20

Answers to review questions

- 1) Define integrated pest management~ (IPM) IPM is a strategy to prevent and suppress pests with minimum impact on human health, the environment, and nontarget organisms (pp. 4:17--438).
- 2) Why do you believe the integrated pest management system -was developed, and what do you see as its major benefits and problems? *

IPM is partly a response to concerns about the effects of chemicals on humans and the environment. [t

also addresses the need to find more economical approaches to controlling pests. IPM can help gardeners reduce their use of synthetic chemicals and can maintain a more balanced ecosystem in their yard. One potential problem is that success with IPM requires careful monitoring to detect problems early and ongoing attention to keep damage at acceptable levels ..

3) When should you start thinking about using IPM in your yard?

Before you even choose plants. Selecting pest-resistant plants and putting plants in the right location are the first steps to a successful IPM strategy (pp. 439-440).

4) Which of the following are cultural methods of IPM? (Mark all correct answers.) (a) Choosing the correct plant for the site (pp. 439--440)

(c) Choosing plants based on resistance to problems (p. 439) (d) Maintaining plant health from the first day (p. 440)

(f) Sanitation (pp. 440--441)

(g) Rotation (p. 441)

(h) Diversification of plantings (pp. 441--442)

5) Put the following techniques into the order in which they usually are used in an IPM program: *

4 Using chemicals (organic or nonorganic) (pp. 450--452)

3 Physically blocking, removing, or trapping pests (pp. 442--445)

1 Using resistant, adapted plants and keeping them healthy (pp. 439-440)

2 Enhancing biological systems for a well-balanced ecosystem (pp. 445--449)

*You may need to use other chapters, additional reference materials, or your own experience to answer this question fully.

Answers to review questions Chapter 20-Integrated Pest Management page 2

6) In many cases, insects are given a "bad rap." But most plant problems are due to nonliving factors. Name some of these factors.

- Lack of fertilizer (p. 438)
- Poor water management (p. 438)
- Inappropriate soil (p. 438 and Chapter 2)
- Weather-related factors such as wind, sunburn, frost, or too much or too little rain (pp. 198-201, 438)
- Mechanical injury (pp. 202, 438)

7) What is the best way to build populations of beneficial insects?

Create a habitat for them. Buying insects is much less satisfactory (pp. 447-449).

8) If you must use a chemical (organic or synthetic), **how** do you choose it? How do you apply it?

- Try to use the least toxic effective material (pp. 450-451).
- Spot spray only (p. 451).
- Read the label and follow all suggested safety practices (pp. 424-425, 429, 451).

9) If you are helping a client develop a solution to a pest problem (weed, insect, or disease), how can you lead her to use an IPM approach?"

- Make sure the pest is identified properly so the correct control can be applied (p. 438).
- Help the gardener determine her own tolerance for damage from the pest, suggesting that zero damage is not necessarily the only or best goal (p. 439).
- Explain how to monitor the pest's population so controls are applied only when appropriate (p. 438).
- Suggest cultural, biological, and mechanical controls first (pp. 439-450).
- If pesticides are needed, recommend the least toxic materials (pp. 450-452).

10) How would an IPM strategy apply to a household pest?"

- Many household pests can be managed by exclusion and sanitation; for example, by sealing entry points such as screen windows and by eliminating sources of food.

- On houseplants, hand picking often is a good method of pest management since the area involved is small and easily visible (p. 298).
- If chemicals are used inside the home, it's especially important to use least toxic materials (pp. 298-299).

'You may need to use other chapters, additional reference materials, or your own experience to answer this question fully.'

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Answers to review questions Chapter 20-Integrated Pest Management page 3

11) Are you a meticulous gardener or are you willing to tolerate some damage? Establish your tolerance level for the I2-spotted cucumber beetle. What is an acceptable injury level for you? Are you familiar with this pest? If not, look it up. (What reference did you use?) What host plants does it feed on? Is your tolerance of its presence greater on some plants and less on others?'

Cucumber beetles are about 5-7 mm long, yellowish-green, with 12 black spots. They commonly are mistaken for lady beetles. They feed on petals of many flowers including dahlias, daisies, and iris, and on leaves of cucumbers, beans, and corn. On some plants, they spread disease. You might have more tolerance for beetles on cucurbits but less on flowers, which are enjoyed for their cosmetic beauty. Perhaps you tolerate 1 per plant or 10 per flower, or are unwilling to tolerate them at all (p. 439).

12) What would your pest management strategy be for preventing slugs or snails from becoming a problem in your garden?

- Keep the garden weed-free to remove food, shelter, and places to breed (p. 440).
- Use copper strips (p. 443).
- Use diatomaceous earth or iron phosphate granules around plants (pp. 443-444).
- Use beer traps (p. 445).
- Place shingles in the garden and collect slugs from beneath them in the morning.
- Use drip irrigation and water early in the day.

13) Name five soft-bodied pests found in greenhouses.'

- Aphids (pp. 292, 294)
- Whiteflies (p. 294)
- Scales (p. 295)
- Thrips (p. 296)
- Mealybugs (p. 295)

Why are they called soft-bodied?

The exoskeleton or outer cuticle (skin) layers of soft-bodied insects are softer and thinner than those of insects such as beetles.

Name three ways of suppressing them.

- Insecticidal soaps (pp. 298, 451)
- Horticultural oils (p. 451)
- Botanical insecticides such as neem (p. 452)
- Blue and yellow sticky traps (p. 444)
- Vacuuming (p. 444)
- Biological control methods such as parasitic wasps, predatory lady beetles, and commercially available pathogens such as the fungus *Beauveria bassiana* (pp. 445-450).

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14) If you plan to plant rhododendrons, what insect pest might you encounter?

Root weevils (*p. 379*)

How might you prevent or discourage it?

- Choose a resistant or tolerant variety (*p. 439*).
- Make sure the potting mix does not contain larvae or adults (*p. 440*).
- Make a sticky barrier around the main stem to catch adults climbing up (*p. 443*).
- Apply nematodes to the soil (*p. 450*).
- Capture adults at night when they are actively feeding (*p. 442*).