

# Plant Propagation

## Chapter 3

### Answers to review questions

1) Name the two general types of plant propagation.

Sexual and asexual (*p. 61*)

2) What four environmental factors affect germination?

- Water (*p. 62*)
- Oxygen (*p. 62*)
- Light (*p. 62*)
- Heat (*p. 62*)

3) Do lettuce seeds require light or darkness for germination? How about calendula?

Lettuce needs light. Calendula needs darkness (*pp. 62--63*).

4) What is stratification used for?

To artificially provide a cold, dormant period for seeds that require these conditions before germinating (*p. 64*)

5) When pasteurizing soil, what temperature should the soil be? How long must it be kept at this temperature?

140°F for at least 30 minutes (*p. 65*)

6) When is the ideal time to transplant seedlings from a germination container to a larger container?

When the first true leaves appear above or between the cotyledon leaves (*pp. 68--69*)

7) What three environmental factors are manipulated to harden seedlings before they are moved outdoors?

- Temperature (*p. 69*)
- Water (*p. 69*)
- Relative humidity (*p. 69*)

### Answers to review questions Chapter 3-Plant Propagation

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8) What are the three types of stem cuttings?

- Tip (*p. 71*)
- Medial (*p. 71*)
- Cane (*p. 71*)

9) Which type of layering might be used to propagate a rubber tree growing indoors?

Air layering (*p. 74*)

10) What four conditions are necessary for successful grafting?

- The rootstock and scion varieties must be compatible (*p. 75*).
- The plants must be at a proper stage of development (*p. 75*).
- The cambial layers must be joined (*p. 75*) ..
- The graft union must be kept moist (*p. 75*).

11) What is the most commonly used method of budding?

T-budding (*p. 78*)

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12) Successful propagation using tissue culture relies on sanitation and using disinfected plant

material. What can you use to disinfect plant material?

A mixture of 1 part commercial bleach and 9 parts water. Soak the plant material in this mixture for 8 to 10 minutes (p. 79).

# Houseplants

## Chapter 13

### Answers to review questions

1. Optimum temperature, light, and humidity are necessary for a houseplant to thrive. Briefly describe how you can manage each of these ...

- *Temperature*-Plants can tolerate a broad range of temperatures, but don't do well when exposed to extremes. Allow the plant to adapt to different temperatures by slowly raising or lowering the temperature over a period of a few days or weeks. Some rooms are warmer than others. Keep plants in a room where temperature conditions meet their needs (pp. 286-287).

- *Light*-For more light, move the plant to a room with southern exposure, or use supplemental lighting. For less light, move the plant away from the light source or use a barrier (e.g., curtains or blinds) to reduce the amount of light that enters the room (p. 286).

- *Humidity*-Most houseplants need more humidity than what is found in most homes. Increase humidity near a plant by placing it in a shallow tray with moist gravel, by placing moistened sphagnum moss around the plant, by growing many plants together, or by using a humidifier (p. 287).

2) Proper watering is essential for houseplants to thrive. What are some watering guidelines?

- Use a high-quality potting mix (pp. 287, 290-291).
- Make sure containers have at least one drainage hole so excess water can drain away (pp. 287, 289).
- Apply enough water so that it runs out the bottom drainage hole each time you water (p. 287).
- Do not allow pots to sit in excess water (p. 288).
- Water plants when they need it, not on a set time schedule (p. 288).
- Reduce watering during winter (p. 288).
- Twice a year, take some extra time and flush out the soluble salts that may have accumulated in the pots (p. 288).

### Answers to review questions Chapter 13-Houseplants page 2 .

3) Houseplants can experience a number of pest problems. How can you avoid some of these?

- Inspect new plants before you bring them home, quarantine them for a couple of weeks, and keep an eye on them for pests. Treat plants that you have put outside during the summer the same way when you bring them inside in the fall (p. 297).
- Don't use soil from outdoors in a potting mix unless you pasteurize it first. A better option is to use a commercially prepared mix (pp. 290-291, 297).
- Don't handle other people's plants (p. 297).
- Make sure screen doors and windows are tight to exclude pests (p. 297).

- Do regular maintenance on your plants to remove dead leaves and other debris where pests can hide (p. 297).
- 4) What are some issues you need to consider if you decide to use chemical pest control on your houseplants?
  - Use only a product labeled for use indoors. ([here are very few.]) (p. 298)
  - It's best to treat the plants outside to avoid contact with kitchen areas, children, and pets  
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  - Some products may damage plants (e.g., they may cause leaf burn, curled leaves, or distorted flower buds) (pp. 298-299).

# Basic Entomology

## Chapter 14

### Answers to review questions

1) What are the basic differences between insects and humans?\*

- Insects are smaller.
- Insects have an exoskeleton; humans have an endoskeleton (p. 304).
- Insects often go through metamorphosis; humans do not (pp. 307-308).
- Insects and humans have different social organizations.
- Insects and humans have different reproductive strategies.

2) What are the anatomical differences between insects and arachnids?

- Insects have six legs; arachnids have eight (pp. 303; 306).
- Insects have three body parts; arachnids have two (pp. 303, 305).
- Many insects have wings; arachnids do not (p. 305).

3) What does the "ptera" stand for in many insect order names?

Wing. Wings include many insect identifying features-the number of wings, venation, etc. (p. 305-306).

4) Why is the type of mouthparts on an insect important?

The type of damage (e.g., chewing versus sucking) depends on the type of mouthparts and helps distinguish which insect is doing the damage on an injured plant (pp. 307, 309, 342-343).

5) Arthropods often are classified as beneficial, harmful, or neutral. In which category would you place each of the following and why? (Mark each with B for beneficial, H for harmful, or N for neutral.)"

*B* Centipede-Beneficial in the Pacific Northwest. In some areas, however, venomous to humans (pp. 297, 303).

*H* Flea-A serious nuisance and vector of disease.

*B* Bald-face hornet-Major insect predator. They occasionally are in a site where they come into direct conflict with humans, however (p. 312).

*N* Boxelder bug-Merely a nuisance to people who can't stand to share their house walls with insects (p. 311).

(continued)

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

## Answers 10 review questions Chapter 14-Basic Entomology page 2

*B* Ladybird beetle-Major insect predator. However, Asian ladybirds arouse human ire when they move into buildings (pp. 310, 446-449).

*BIH* Earwig-Eats slug eggs and functions in other ways in the environment, but their love of flower petals is a problem (p. 3/0).

*BIH* Ant-Ants in general are among the most efficient insect predators. However, house ants may become a nuisance and get into food, and carpenter ants can cause serious structural damage (p. 312).

*HIB* Aphid-On some plants, causes damage and transmits viruses. However, they are a major food source for many beneficial organisms (p. 312).

*BIN* Swallowtail butterfly-Because of their beauty, people forgive the occasional larval feeding (p. 313).

*B/N* Mantid-Despite being a symbol of predaceous insects, mantids actually are ineffectual and eat both good and bad insects and even each other (p. 314).

6) How do insects communicate?\*

Various insects use pheromones, sound, light, vibration, and/or visual signals.

7) If a client brings in an invertebrate found in the house, how would you proceed to identify it and to help the client manage the problem?

First determine what type of animal it is (insect, arachnid, etc.). Then narrow it down to order. You'll need a sample and information about where it was found, damage observed, and a history of the "problem." Only after determining whether there really is a problem and identifying the pest can you proceed to suggest management strategies. Most household pests are managed through sanitation and exclusion (pp. 309, 342-344).

8) What is the function of insects in the environment? Discuss both their good and bad aspects. Insects are overwhelmingly beneficial. They:

- Build soil (p. 304)
- Pollinate plants (p. 304)
- Eat weeds (p. 304)
- Kill pest insects (p. 304)
- Decompose organic matter (p. 304)
- Serve as food for other animals (p. 304)

Insects are bad only by human definition. Some:

- Spread disease (p. 301)
- Eat crops (p. 301)
- Cause a nuisance (p. 301)
- Damage structures (p. 301)

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

## Answers to review questions Chapter 14-Basic Entomology page 3

9) Why would it matter if some types of insects were eliminated?"

- The soil would cease to renew itself.
- Waste would build up rapidly.
- Birds would die.
- Food sources for other animals would be severely reduced.
- Food plants and ornamentals would cease to exist due to lack of pollination.
- Much of the beauty and complexity of our world would disappear.

10) What is the significance of metamorphosis?"

It enables arthropods to occupy different niches for food and habitat and permits a wider variation in body types. It is one of the greatest magic tricks in nature, comparable to photosynthesis and seed dormancy.

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

# Vertebrate ; Pest Management

## Chapter 18

### Answers to review questions

- 1) What general habitat needs do animals find in a landscape that keep them around?
  - Food (p. 404)
  - Water (p. 404)
  - Shelter (p. 404)
- 2) What are the best nonlethal techniques for vertebrate pest management?
  - Alter the environment to make it less attractive (remove food, cover, etc.) (pp. 404--405).
  - Tighten foundations and roof lines to make houses inaccessible (p. 405).
  - Fence in crops or cover them with net (pp. 415, 417, 420).
- 3) How do you distinguish between a mole problem and a gopher problem?
  - Shape of the mounds (p. 409)
  - If you have the body, the paws and tooth structure (pp. 408-410)
- 4) Moles get blamed for a lot of vegetation damage, yet they eat mostly earthworms, grubs, and soil insects. What animal usually is the culprit?  
Meadow mice (also known as field mice or voles), which use mole runways and damage vegetation (p. 411)
- 5) What are some methods for reducing plant damage from field mice (voles)?
  - Eliminate moles, and collapse the mole runways voles use.
  - Keep grass mowed short to allow hawks, cats, and owls to reduce the vole population (p. 412) ..
  - Remove vegetation in a 36-inch circle around new trees (p. 412).
  - Pick up fruit and other food attractive to voles (p. 412).
  - Don't leave potatoes, carrots, and other root crops in the ground (p. 412).
  - Avoid the use of black plastic, mulches, and landscape fabrics that provide cover (p. 412).
  - Eliminate wood and brush piles that provide cover (p. 412).
  - Place hardware cloth around the trunks of shrubs and small trees (p. 412).
  - Don't let bird feed fall on the ground from feeders (p. 412).
  - Consider trapping and baiting as a last resort (pp. 412-413).

## Answers to review questions Chapter 18-Vertebrate Pest Management page 2

6) Why are repellents often not consistently effective against deer browsing? .

- Repellents might be washed off by rain or decomposed (*p. 416*).
- Deer might have such established habits that they are not deterred by the repellent (*p. 416*).
- Some repellents are less effective than others (*p.416*).

. What would improve the effectiveness of repellents?

- Apply them early and often (*p. 416*).
- Protect plants with mechanical barriers (*p. 415*).
- Use plants that deer don't like (*p. 416*).

7) A client calls with a question about strange sounds under his house. How would you tell him to approach the problem? .

- Remove all food, especially cat or dog food, easily available to animals (*p. 405*).
- Close up openings under the house only after he is sure the animals are gone (*p. 418*).
- Consider using a live trap, but check it often and release nontarget animals (*pp. 418-419*).

8) What are some reasons for not releasing a live-trapped animal back into the wild?'

- It could cause problems for other houses or farms.
- Many live-trapped animals won't survive if removed from their known surroundings (*p. 415*).
- The animals may transmit diseases to new areas.

9) Rats and mice can be either killed with poison baits or trapped. What are some advantages and disadvantages of each method?

Baits (*pp. 405-407*)

- Advantages: Baits often work quickly. You can vary baits to avoid bait shyness.
- Disadvantages: Animals can die in the walls, creating a horrible smell. There is a small chance of injury to nontarget animals, especially if rats or mice move the bait.

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Traps (*p. 407*)

- Advantages: Used properly, traps are not dangerous to nontarget animals. When animals are trapped, you can dispose of the body. No poisons are involved. Traps are very effective on mice.
- Disadvantages: When handling traps and bodies, you might be exposed to diseases and parasites. Rats become wary and you might be able to trap only a small percentage of the population.

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