APPENDIX A

ANSWERS TO SELF-TEST QUESTIONS

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Chapter 1: General Information

1. An active ingredient is the part of a formulation that controls the pest.

2. Adjuvant

3. a) Rodents (mice, rats)
   b) Fungi
   c) Plants (mostly weeds)

4. a) GR means 'granular'. Granular pesticides are often ready to use. These show little, if any, drift during application.
   b) F means 'flowable'. These seldom clog sprayer nozzles.
   c) PE means 'pellet'. These are easy to handle. They can be used to treat small areas. They will not drift.

5. Two or more pesticides may be "tank mixed" when the labels of each indicate so.

6. A contact herbicide controls weeds by damaging the surface of a plant (often the leaves).

7. Systemic insecticides are absorbed into plants or animals. Insect pests are killed when they chew or suck on the treated plant or animal.

8. True

Chapter 2: Regulations

1. The *Pest Control Products Act* and *Regulations* (PCP Act)

2. Pesticides are classed as Domestic, Commercial, Restricted, or Manufacturing. Domestic class pesticides are sold in small containers. They are registered for home use. Commercial class pesticides are designed for use in agriculture, forestry, industry, or other commercial outfits. Restricted class pesticides have more limitations than Commercial class pesticides. Manufacturing class pesticides are used in manufacturing, formulating, or repackaging.

3. False

4. The terms 'Agricultural' or 'Industrial' are often used in place of the term 'Commercial' on the label of Commercial class pesticides.

5. MRL stands for the **maximum residue limit**. This is the maximum amount of pesticide that may be safely contained in food products.

6. False. Provincial pesticide laws are more specific than the federal *Pest Control Products Act*.

7. True

8. True. The Workplace Hazardous Materials Information System (WHMIS) has been developed to provide employers and employees with information on the safe use, storage, handling, and disposal of <u>all</u> hazardous material used in the workplace. This includes training related to pesticides.

Chapter 3: Labeling

Quiz # 3-1

1. Control Plus brand 70 WP Insecticide
2. 95,000
3. triochemical
4. 70.35% by weight
5. Wettable powder
6. The Pesticide Company
7. 340 grams
8. Commercial or Agricultural
9. Moderately Poisonous

Quiz # 3-2

1. no
2. 500 L/ha
3. 12 days
4. Wheat/Wheat Moth x
   Cranberries/Cranberry Girdler
   Rutabagas/Aphids
   Broccoli/Cabbage looper
   Broccoli/Aphids x

Rape Greens/Diamondback Moths
Wheat/Grasshopper x

5. Broccoli 7
Wheat 15
Barley 7

6. Cabbage/Aphids 56-86 grams/ha
Barley/Leafhoppers 80-120 grams/ha
Wheat/Wheat moth 120-240 grams/ha
Barley/Grasshopper 67-240 grams/ha

7. There is no specific antidote.

8. long sleeved shirt, long pants, chemical resistant gloves, respirator, goggles

9. 12 hours

10. no

11. Upon advise of a physician or doctor, drink 1-2 glasses of water & induce vomiting.

12. no

Quiz # 3-3 Principal Display Panel

1. 1: C; 2:D; 3:A; and 4:B.
2. Octagon shape
3. TRUE
4. TRUE
5. Domestic, Commercial (Agricultural or Industrial), Restricted, and Manufacturing

6. FALSE Pesticides with "Agricultural" on the principal display panel are classed as Commercial pesticides.

7. TRUE

8. (1) By the weight of active ingredient per unit volume
   (2) As a percentage by weight
   (3) biological units

9. TRUE

10. FALSE It is **illegal to sell and use** pesticides in Canada with only U.S. Environmental Protection Agency (E.P.A.) numbers. The PCP Act Registration Number must be on all labels.

Quiz # 3-4 Secondary Display Panel

1. FALSE The maximum number of applications in the Number of Applications Statement **cannot be exceeded.**

2. FALSE The **most strict buffer zone** statement of either the provincial regulatory requirement or the label must be followed.

3. P.C.P. Act Registration Number and information from the Toxicological Information Statement.

Quiz # 3-5 MSDSs

1. Material Safety Data Sheet

2. Product information section
   Hazardous ingredients section
   Physical data section
   Occupational procedures and prevention measures section
   First aid and emergency procedures section
   Fire and explosion hazard section
   Toxicity and health effects section
   Reactivity data section
   Preparation date and group section

Chapter 4: Human Health

1. True

2. Acute toxicity

3. False The smaller the number, the more toxic the pesticide.

4. False Effects of chronic toxicity are often hard to detect and permanent.

5. Inhalation (into the lungs), dermal absorption (through the skin), and ocular absorption (through the eye), ingestion (into the stomach)

6. False Most prescription eyeglasses do not provide proper protection from pesticide drift or splash.

1. True

Chapter 5: Pesticide Safety

Quiz # 5-1

1. Precautions to consider:

   - Remove children
   - Remove pets
   - Remove/cover sandbox/playtoys
   - Remove barbeque
   - Remove clothes on line
   - Close windows

Quiz # 5-2

1. Read and follow all label information.
   Wear clean personal protective equipment (PPE).
   Remove contact lenses before handling pesticides.
   Wash before eating, drinking, smoking, or using the toilet.
   Do not carry food or smoking products on your body when handling pesticides.
   Never eat, drink or smoke when handling pesticides.
   Wash any spillage off the affected person and remove contaminated clothing.
   Shower, wash body, hair, and scrub under fingernails at the end of each day.

2. Total amount of pesticide required to buy = Pesticide rate x Treatment area

3. Some factors that can affect risk during pesticide use or handling include:

   - The pesticide
   - The type of exposure
   - The length of exposure
   - The application method
   - Location ie. enclosed space

4. Gloves should be:

   - In good condition (no holes, rips)
   - Clean
   - Made of a proper chemical resistant material for the pesticide such as neoprene, nitrile, butyl rubber or pvc-supported (not leather or cloth)
   - Unlined
   - Long enough to cover the wrist and lower forearm when cuffed.

5. Face shields give protection to the full face from spills or splashes that can occur during the mixing and loading of pesticides.

6. Respirators must:

   - Have either/or 1 of the 3

    - Have a CSA (Canadian Standards Association),
    - MSHA-NIOSH (Mines, Safety, Health Association - National Institute of Occupational Safety & Health), or
    - Have a BHSE (British Health & Safety Executive) approval for pesticide use
- Have a proper cartridge or canister designed for pesticide use
- Fit properly
- Be clean
- Contain cartridges that are not over-saturated

7. Types of respirators include:

- Cartridge respirators
- Canister respirators
- Air-powered purifying respirators
- Self-contained breathing equipment

8. When transporting pesticides:

- Pack containers securely to prevent movement or breakage during transit.

- Take extra care with liquid pesticides.

- Make sure that containers are stacked securely to reduce the risk of breaking or spilling.

- If a spill occurs, clean it up.

- Do not transport leaking or damaged containers.

- Never transport pesticides with food, feed, fertilizer, clothing, or household goods. They must be kept separate.

- Only use containers (with labels) that are in good condition.

- Never leave pesticides unattended in a vehicle, unless they are locked in a compartment outside the passenger area.

- Only transport pesticides in their original containers that are intact.

- Make sure caps and plugs are tightly closed. Transport liquid pesticide containers in an upright position.

- Protect paper and cardboard containers from moisture (e.g., rain, snow, humidity).

- Never transport pesticides in the passenger compartment of a vehicle. Never let people or animals ride in the same compartment with the pesticides (e.g., back of truck).

- Do not transport pesticides on a wooden truck bed.

9. The location of a storage facility should be:

- Separate from work areas, living areas, and areas where animals are kept
- Away from wells, ditches, or water bodies
- Away from areas where flooding can occur
- Away from highly porous soil
- Away from areas used by the public, children, and animals
- Sited at least 50 meters from residences, hospitals, schools, and buildings with high occupancy
- Accessible to emergency personnel

10. Before mixing and loading:

- Read the label to confirm that the pesticide is registered for the intended use.

- Check on safety precautions, review poisoning and first aid information.

- Check mixing directions, pesticide rates, and limitations.

- Determine how much pesticide is needed in each tank/application.

- Put on personal protective equipment.

- Prepare only the amount of spray mixture needed.

- Make sure clean-up and first aid equipment, and emergency phone numbers are within reach.

11. To clean a blocked nozzle:

    - Use a soft brush and clean water or compressed air.
    - Never blow out a nozzle using the mouth.
    - Never use sharp metal objects or wire to remove a blockage. This can damage the nozzle.

12. To wash clothes:

    - Use chemical resistant gloves to handle contaminated clothing.
    - Use a pre-wash additive on contaminated areas.
    - Pre-soak and wash separate from normal laundry.
    - Do not overload the washing machine.
    - Pre-rinse clothing using the pre-soak cycle.
    - Set the machine for a normal wash cycle, a full water level, and use hot water during the wash and rinse cycles.
    - Use either a heavy-duty detergent, bleach, or household ammonia (do not mix these cleaners).
    - Repeat wash cycles if necessary.
    - Run the empty washing machine through a full cycle after use. Use hot water on the highest level setting and detergent to rinse it.
    - Hang clothes to dry. This prevents contamination of the dryer.

13. Steps for container disposal include:

    - Drain the container into the spray tank or mixing tank. Do this until there are no visible drips. If the pesticide is a dry formulation, shake the bag into the tank or hopper.

- Triple rinse or pressure rinse metal, plastic, or glass containers; gently single rinse bags when possible.
- Make the empty container unusable by cutting, puncturing, and/or crushing plastic, metal, or paper containers. Break glass containers in a plastic bag. This does not apply to refillable containers.
- Cap and dispose of the container according to provincial laws. Return containers to collection depots for recycling/disposal when available.

14. If there is an excess of spray mixture, use it according to label directions on another field that requires an application. If this is not possible, contact your provincial pesticide regulatory body for guidance.

15. Never apply surplus tank mixture as a second application to a treatment area without first diluting it.

16. Re-entry time is the minimum time required to stay out of a treated area without personal protective equipment.

17. It is important to keep good records because:
    - Record keeping gives a history of pest problems and control methods used for an area.
    - They can be useful for planning applications, re-entry times, harvest dates, and grazing times.
    - Records provide details on the application and equipment settings.
    - They answer questions or address problems that come up after
    - application (e.g., poor applications, crop or property damage, complaints, lawsuits).

Chapter 6: Environment

1. **Desorption** occurs when a pesticide bound or adsorbed to soil or other material is released.

   Volatilization is the process where solids or liquids become vapour (gas).

Spray drift refers to the airborne movement of spray from a treatment site during application.

Runoff is the movement of water down a slope.

Leaching is the movement of pesticides with water through the soil.

Absorption is the movement of pesticides into organisms (plants or animals) or structures (e.g., soil, wood).

Degradation is the breakdown of pesticides into other compounds.

2. Pesticides can contaminate water through:

   - Natural processes such as runoff, leaching, and erosion of soil that has adsorbed pesticides
   - Improper clean up of spills during mixing, loading, or transport
   - Poor disposal of excess spray mix, unwanted pesticides, or rinsate from containers
   - Poor handling or applications including or resulting in:

     i. Particle drift
     ii. Vapour drift
     iii. Higher than called for application rates
     iv. Failure to clean up spills
     v. Back siphoning of pesticides from the spray tank into the water source
     vi. Overflow of the spray tank during filling
     vii. Improper washing down of spray equipment

3. Contamination of watercourses can be reduced, and aquatic life protected by:

   - Applying pesticides properly
   - Using correct pesticide application rate
   - Choosing pesticides with care when applying them near water or shallow aquifers
   - Avoiding pesticides with a:
     - tendency to leach to shallow aquifers
     - high runoff potential or
     - high aquatic toxicity

- Using buffer zones (as directed by provincial law or label precautions) when mixing, loading or applying pesticides
- Showing extra care and restraint when applying pesticides near fish habitat or areas that drain into fish habitat

4. Soil can be contaminated by pesticides when:

   - Spills occur during mixing and loading
   - Application equipment is left unattended and allowed to overflow during a mixing and loading operation
   - Pesticides or pesticide containers are improperly disposed
   - Pesticide label rates are exceeded

5. Animals can be protected from pesticides by:

   - Being mindful to the presence of wildlife
   - Reading and following all pesticide label information
   - Following safety guidelines described in this standard
   - Only using pesticides when needed
   - Using the least toxic and least persistent pesticide registered
   - Using target-specific pesticides to reduce the impact on non-target organisms
   - Knowing the effects that granular pesticides and treated seed can have on wildlife (Make sure that such pesticides are properly used and stored. Poisoned rodents can cause secondary poisoning of pets or other animals. These should be removed in a proper manner.)
   - Avoiding pesticides that are likely to move away from the area of application through drift or runoff
   - Leaving buffer zones around sensitive areas

6. Damage of streamside plant life can affect bank stability. This can remove a food source and shelter area for some wildlife and aquatic organisms. Loss of shade plants next to watercourses can also cause an increase in water temperature or a loss of fish food.

7. **c.** Contamination that occurs when a large amount of pesticide is released in a small area (e.g., spill, pesticide fire, or poor disposal) is known as **point source contamination**.

8. **False**. Vapour drift is the movement of vapours from the area of application. Spray drift refers to airborne movement of spray or particles from a treatment site during application.

9. **True**

10. **False**. Selecting nozzle types that produce large droplets (and still give good coverage) will reduce spray drift.

Chapter 7 Integrated Pest Management

1. Advantages of using an IPM approach are that it:

   - Provides long-term solutions to pest problems
   - Protects the environment and human health by reducing pesticide use
   - Reduces harm to beneficial organisms
   - Reduces development of resistance in pests
   - Provides a way to manage pests when pesticides cannot be used

2. Prevention of pest problems is usually cheaper. It also provides better long-term results than waiting for problems to appear and then treating.

3. d

4. The injury threshold is the level at which pest numbers are high enough to cause unacceptable injury or damage. The action threshold is the point at which treatment should take place to prevent the pest population from reaching injury threshold.

5. Cultural; biological; mechanical/physical; behavioural; and chemical controls (need to give examples of each)

6. Communicating is important because a large amount of information needs to be taken into account and used when solving any pest problem. Information comes from a variety of sources. This also has to be done to educate customers, future clients and the general public.

7. **True**

8. **False** Counting the number of pests on plants is referred to as counting and measuring. Visual inspection involves checking for the presence of pests, beneficial organisms, signs of damage, etc. This information is recorded in writing.

9. **False** An IPM program often uses a number of coordinated treatment methods. This combination tends to be more effective than using only one method.

Chapter 8: Application Technology

1. It is important to correctly use and maintain pesticide application equipment:

   - To apply the pesticide uniformly on the desired target at the calibrated label rate
   - To extend the life of the equipment
   - To avoid contamination of non-target sites

2. Calibrate application equipment so that it can deliver the right amount of pesticide, in a uniform pattern to the treatment area and the pest.

3. Refer to the operator manual or consult industry / government experts.

4. Weather conditions include:

   - Air movement or wind patterns
   - Relative humidity
   - Temperature.

5. Vapour drift occurs when pesticide vapours move away from the target site during or after an application. To reduce the amount of vapour drift

   - Select less volatile pesticides.
   - Do not apply pesticides when weather conditions (e.g., high temperatures) would be prone to cause evaporation or volatilization.
   - Properly seal an area being fumigated to contain the fumigant or any volatile pesticide.

Chapter 9: Emergency Response

1. The numbers should include the local environmental emergencies number, police, fire, ambulance, poison control centre, doctor, and Canutec.

2. False PPE should always be put on before going into a contaminated area or handling someone who has been exposed to a spilled pesticide.

3. A spill is considered to be small if it is less than 20 L or 20 kg of concentrated product or less than 200 L of pesticide mix.

4. It is wrong to put large amounts of water on a spill because the pesticide/water mix may leach into the soil and cause groundwater contamination.

5. A person involved in the spill or cleanup who feels sick should be taken to hospital immediately. A clean pesticide label or the PCP Act Registration Number should be sent along with him/her.

6. Fires involving pesticides are extreme hazards because some pesticides are flammable, a few are explosive, and all can produce toxic fumes when burned.

7. Actions that can prevent or reduce the chance of a fire involving pesticides include:

   - Not using open flames for welding, burning, cutting, or heating in the pesticide storage site

- Making sure that the pesticide storage structure adheres to the National Fire Code, National Building Code, National Electrical Code, provincial laws, Municipal By-laws, etc.

- Securing doors and windows to prevent unauthorized people from entering

8. **True**

9. The treatment for pesticide in the eye is to hold the eyelid open and flush immediately with clean running water. Do this for at least 15 minutes. Read and follow the first aid instruction on the product label. Call for medical help or transport the patient to hospital.

10. b) Small amounts of water may be given to an unconscious or drowsy patient. **(False)**

11. Quick action is important to reduce impact and prevent an emergency from turning into a major disaster. It can also reduce liability for damages.

12. An ERP should prepare for:

- Accidents causing injury
- Gas and odour release
- Pesticide spills
- Fires or explosions
- Natural disasters (floods, ice storms, etc.)
- Vehicle transport accidents
- Threats (phone calls)

Chapter 10: Professionalism

1. **True**

2. Qualities of professionalism of the following:

- Professionalism
- Having a good attitude
- Having knowledge of the profession

- Communicating with the public
- Working in a professional manner

3. d

4. b

5. A pesticide applicator can show a good attitude by:

   - Limiting applications (Never do a whole lawn treatment if a spot treatment will do.)
   - Keeping a safe work environment for applicators
   - Showing concern for the environment
   - Refusing unsafe work
   - Being quick and responsive to requests for information, complaints, concerns, or emergencies
   - Staying within your skill area
   - Making recommendations based on facts
   - Taking the concerns of bystanders and neighbours into account
   - Spending time with the client or public to explain the operation

6. Any of the following 14 ways:

   - Use pesticides responsibly, and in keeping with the label.
   - Notify neighbours, or people who can be affected, before any pesticide application.
   - Do not use pesticides when bystanders are present.
   - Use integrated pest management (IPM) techniques.
   - Use proper pesticide rates.
   - Keep a record of each application.
   - Avoid applications during adverse weather.
   - Communicate within the business (e.g., supervisors, head office).
   - Equipment should be clean and well maintained. Schedule daily and weekly preventative maintenance inspections.
   - The operator should prepare and be familiar with equipment before the application. Equipment/vehicles should be used in a safe and proper manner.
   - Before any application, give thought to ground, weather, and road conditions. Follow all road laws while in transit.
   - Confirm that the application is being made at the correct site.

- Plan ahead to avoid problems during the application. Have a copy of an emergency response plan for spills. Keep a spill clean up kit on hand.
- After the application, clean application equipment and boots between sites. This prevents the spread of pests. Keep records. Perform any follow up inspections.

7. Any of the following 8 ways.

- Listen to public concerns. Try to understand their point of view.
- Involve the public and the client in decisions that may affect them.
- Take part in public forums.
- Plan and evaluate communication.
- Be honest, frank, open, and cooperate with the public and government.
- Speak clearly and be sincere.
- Meet the needs of the media.
- Avoid damaging or less than honest statements. Provide the facts.

8. **True**

9. **True**