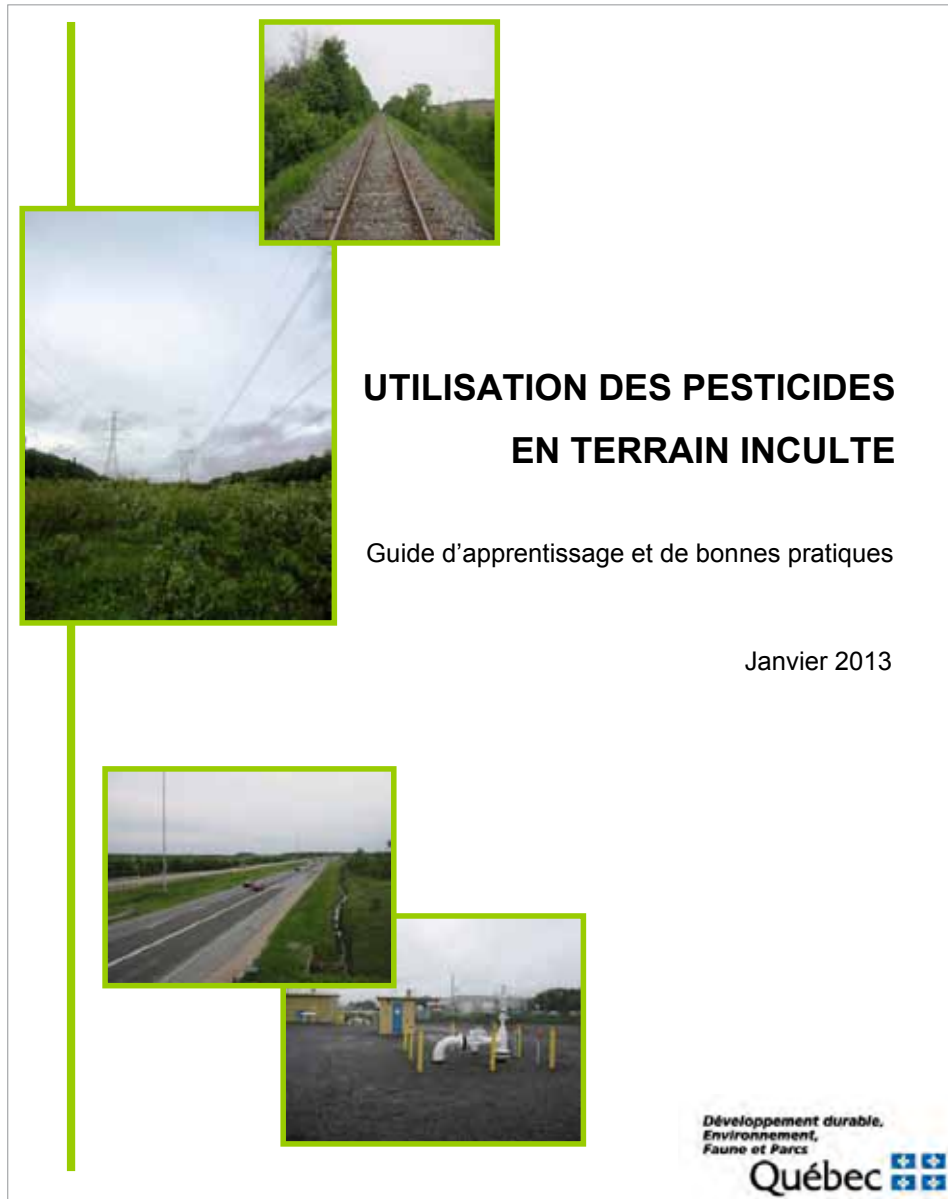


Use of pesticides on Raw land

Pre-Evaluation Answer Key ◀

in addition to learning materials:



GENERAL

1. Name one reason why vegetation management is required along road rights-of-way. (3 points)

Possible answers (one of the following):

- **Provide good sign visibility;**
 - **Provide good visibility at intersections, junctions and access ramps;**
 - **Prevent vegetation from growing in cracks in pavement, shoulder areas, stone walls, under overpasses, etc.);**
 - **Keep drainage ditches in operating condition by limiting the invasion of vegetation;**
 - **Promote suitable road maintenance;**
 - **Limit the spread of undesirable plants;**
 - **Promote traffic flow and user safety;**
 - **Protect infrastructure.**
2. Which of the following reasons justify vegetation management at an airport site? (3 points)
- a) Provide good visibility for runway lighting
 - b) Clear vegetation from fences so they are more visible
 - c) Clear fences to facilitate inspection
 - d) Clear runways to improve visibility.
 - e) **All of the above justify vegetation management at an airport site**

REGULATIONS

3. Indicate whether the following statement is TRUE or FALSE. (2 points)

A certificate of authorization is required under the *Environment Quality Act* in order to apply pesticides in a watercourse.

True **False**

4. What documents can the Québec government use to obtain information on pesticides applied on industrial sites in Québec? (2 points)
- a) permits
 - b) certificates
 - c) **logs/registers**
 - d) the *Pesticides Management Code*
 - e) companies' financial statements

5. Which of the following pieces of information does not need to be broadcast or published before pesticide spraying is carried out in a road corridor? (2 points)
- the name and telephone number of the owner or operator
 - the application distance on either side of the road**
 - the nature of the work
 - the period during which the work will be carried out
 - the name and telephone number of the permit holder in charge of the work.
6. Hydro-Québec retains the services of a specialized firm to apply herbicides under powerlines. The employee who carries out this work must hold what type of document? (2 points)
- a Class C, subclass C3 permit
 - a Class D, subclass D3 permit
 - a Class CD3 permit
 - a Class C, subclass C3 certificate
 - a Class D, subclass D3 certificate
 - a Class CD3 certificate**

HUMAN HEALTH

7. To answer the following questions, consult the material safety data sheet for GARLON® XRT.
- Name an organ that can be affected by the active ingredient in this product. (1 point)
Possible answers (one of the following): kidney, liver (accept "fetus" also, even if not an organ).
 - What should a person who has ingested some GARLON® XRT be given to drink? (1 point)
Water
 - Is the acute toxicity of this product greater through oral exposure or dermal exposure? (1 point)
Oral exposure (ingestion)

SAFETY

8. To answer this question, consult the label for GARLON® XRT. (2 points)
- What personal protective equipment is recommended on the label?
- Goggles or face shield, coveralls over a long-sleeved shirt and long pants, impermeable head covering, nitrile or neoprene gloves and rubber boots.**

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9. Which of the following statements is **FALSE**? (2 points)
- a) Exhaust from brush mowers and other mechanized equipment presents an additional risk of poisoning.
 - b) Pesticide applicators working on industrial sites must be aware of the applicable safety rules which are designed to protect workers and the environment from the potential adverse effects of the product being applied.
 - c) The person in charge of laundering contaminated clothing must be aware of the safety precautions for this task.
 - d) **Overhead powerlines and underground pipelines pose no threat to pesticide applicators.**
 - e) It is important to inform other people who need to work at the site about the re-entry interval after pesticide use.
10. **Before applying a pesticide** on an industrial site, certain tasks must be planned and carried out. Which of the following are not among those tasks? (2 points)
- a) Deciding who will supervise the work
 - b) Marking off the area to be treated and the buffer zone, using tape, cones or paint
 - c) Determining under what meteorological conditions the work should be stopped
 - d) Check and adjust the application rate that will be delivered by the equipment to be used
 - e) **None of the above**

Note: Actually, all of those tasks must be planned and carried out before the application.
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11. What should a worker do if required to re-enter a treated area before the recommended re-entry interval is over? (2 points)

The worker should always wear suitable personal protective equipment.

ENVIRONMENTAL PROTECTION

12. For each statement below, choose the best match from the following list:

(3 points)

- a) sensitive area
- b) application distance
- c) buffer zone
- d) drift
- e) runoff
- f) leaching
- g) area to be treated

STATEMENT	BEST MATCH
Major cause of contamination of non-target elements and reduced effectiveness.	D
Carry out spraying when the wind is blowing away from...	A
When preparing spray mixture near a watercourse or water body, the applicator must be at least 30 metres from the watercourse/body of water.	B

INTEGRATED PEST MANAGEMENT

13. Complete the following sentences with the correct word (i.e., annuals - biennials - perennials)

(3 points)

- A. Herbaceous **perennials** have flexible stems that regrow each year.
- B. Most **biennials** produce a rosette of leaves and a fleshy root, which acts as a food reserve.
- C. Winter **annuals** germinate in the fall, live through the winter as a rosette, then die after flowering and setting seed.

14. For each of the following statements, indicate whether the plant is a monocotyledon or a dicotyledon.

(3 points)

- A. Leaf shape can differ from species to species.
Dicotyledon
- B. The diameter of my stem does not increase as I grow.
Monocotyledon
- C. I am also called a broad-leaved plant.
Dicotyledon

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15. Link each element in the left-hand column with the corresponding element in the right-hand column.

(4 points)

a) Installation of a geotextile membrane	1	1. preventive approach
b) Survey (action threshold)	3	2. selection of a control method
c) Presence of breeding birds	2	3. analysis of aerial photos
d) Broadcast of a message on radio and television	4	4. communication and notices

16. Indicate whether each of the following statements is TRUE or FALSE.

(4 points)

TRUE FALSE

- √ a) A good knowledge of plants and the environment is essential in order to choose the most suitable control method.
- √ b) During powerline maintenance operations, workers often need to access private land to perform their work.
- √ c) Landscaping or growing plants on powerline rights-of-way may be permitted under certain conditions.
- √ d) Slashing (brush cutting) may be more advantageous than herbicide spraying when the vegetation is too tall.

17. For each control method described in the left-hand column, indicate whether it is a cultural, mechanical, physical or chemical method.

(4 points)

CONTROL METHOD	METHOD				
	CULTURAL	MECHANICAL	PHYSICAL	BIOLOGICAL	CHEMICAL
Rather than leaving bare soil, plant desirable species that are compatible with the site.	√				
Clear vegetation around guy wires using a portable trimmer.		√			
Spread sodium chloride (salt) to suppress ragweed growing in roadside areas.					√
Plant goldenrod (<i>Solidago canadensis</i>) under powerlines.	√ (accept "biological" if given as an answer)				

18. Indicate whether each of the following statements is TRUE or FALSE. (4 points)

TRUE FALSE

- √ a) Integrated management consists of a set of methods for maintaining populations of undesirable plants at an acceptable level.
- √ b) Integrated management necessitates good knowledge of plants and the environment in which they live.
- √ c) To avoid disturbing birds, their eggs and nests as much as possible, any work to be carried out near powerlines should be done before mid-July.
- √ d) In a winter concentration area (yard) for white-tailed deer, vegetation management principles differ depending on whether a railway right-of-way or a powerline right-of-way is concerned.

19. A. What kind of herbicide kills all vegetation and remains active for several months? (2 points)

a non-selective residual herbicide

B. What is the mode of action of a herbicide that damages only the plant parts on which it is applied? (2 points)

Contact

20. Indicate whether each of the following statements is TRUE or FALSE. (4 points)

TRUE FALSE

- √ a) If a pesticide has a half-life of 9 days, there will be none of it left after 18 days.
- √ b) If a pesticide has a half-life of 150 days, it will take years for it to disappear.

21. To answer the following questions, consult the appended GARLON® XRT label.

A. Is GARLON® XRT a selective herbicide or a non-selective herbicide? (1 point)

Selective

B. What information on the label indicates this? (3 points)

«Recommended for the control of undesirable woody plants and broad-leaved weeds.»

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22. Indicate whether each of the following statements is TRUE or FALSE. (4 points)

TRUE FALSE

- √ a) The carrier used to prepare the spray mixture can modify the volatility of a herbicide.
√ b) A herbicide persists longer in poor, dry soil than in wet, fertile soil.
 √ c) The use of an adjuvant has no effect on the toxicity of a herbicide.
√ d) The organic matter content of the soil can affect the mobility of a herbicide.

23. Which of the following properties is not linked with the chemical family of a herbicide? (4 points)

- a) poisoning symptoms
b) decontamination guidelines
c) safety guidelines
d) the chemical structure of the active ingredient
e) **the federal classification of the product**

24. Name two factors related to undesirable plants that can influence the efficacy of a herbicide. (4 points)

Possible answers (2 of the following):

- **leaf shape**
- **leaf orientation**
- **type of leaf surface (accept: pubescent or hairy leaves, waxy leaves)**
- **leaf texture**
- **age of the plant**
- **growth stage**
- **resistance to the active ingredient**

APPLICATION TECHNOLOGY

25. Name 2 advantages of spraying granular herbicides. (4 points)

Possible answers (2 of the following):

- **No preparation required (no mixture to prepare)**
- **Easy to apply**
- **Little risk of drift**
- **Can be done all year round**
- **No water required**

26. What is the application rate (in litres/hectare) of a sprayer equipped with 10 nozzles covering a span of 6 metres and with an average output of 0.4 litres per minute, if it takes 1 minute to cover 100 metres in rugged terrain? (4 points)

(NOTE: 1 hectare = 10,000 m²)

In 1 minute, an area of 100 metres × 6 metres is covered, or 600 m² per minute

The average flow rate is 0.4 litres per minute × 10 nozzles = 4 litres per minute for all nozzles combined

The application rate is therefore 4 litres for 600 m² = 0.0067 litre/m²

Given that 1 hectare = 10,000 m², the application rate is 0.0067 litre/m² × 10,000 m² = 67 litres/hectare

27. Name two factors that influence the rate of nozzle wear? (4 points)

Answers (two of the following):

- **Material of construction**
- **Pressure**
- **Product formulation**
- **Orifice size**
- **Frequency of use**

28. The sprayer must be calibrated on several occasions. Name two of them. (4 points)

Possible answers (2 of the following):

- **A new sprayer must be calibrated before it is used for the first time**
- **At the beginning of each season**
- **Each time travel speed is changed**
- **When the nozzles are replaced**
- **When different nozzles are used**
- **When the treatment requires a different application rate**
- **When nozzle spacing is modified**
- **When the sprayer itself is modified (mechanical modification: new pump, regulator, pressure gauge, etc.)**

29. Complete the sentence below with words from the following list: (4 points)

temperature	pH	salinity	acid	alkaline	particles
wear	clogging	analysis	quality	salts	

The presence of suspended soil a) **particles** in the water can cause premature b) **wear** of the pump and c) **clogging** of the filters. It is important to check the d) **quality** of the water to ensure the effectiveness of the treatment.

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30. Consult the appended GARLON® XRT label in order to answer this question.

You must destroy stumps of ash trees that are starting to produce sprouts.

- A. What is the recommended application rate for treating stumps? (1 point)

13 to 19 litres of concentrate for 100 litres of spray mixture

- B. What volume of oil do you need to use for the spray mixture if you are using a backpack sprayer with a 40-litre tank? (2 points)

To prepare 100 litres of spray mixture, you must use 81 to 87 litres of oil.

Since the spray tank has a 40-litre capacity, you will need 40/100 of this amount, that is, 32.4 to 34.8 litres of oil.

- C. What quantity of concentrate and of oil would you use to prepare a full tank when using the maximum application rate? (2 points)

The maximum application rate is 19 litres of concentrate for 100 litres of spray mixture.

$40/100 \times 19$ litres = 7.6 litres of concentrate + (40 – 7.6 = 32.4) litres of oil = 40 litres (capacity of full tank)

- D. What application rate is specified for this type of treatment? (1 point)

No rate is specified. The directions are to THOROUGHLY WET THE FOLIAGE BUT NOT TO THE POINT OF RUNOFF.