



MAY 2015

CCA EXAMINER EXAM

CERTIFIED CROP ADVISER – CONTINUING
EDUCATION SELF-STUDY EXAMINATION



Insecticides (dimethoate and lambda-cyhalothrin) for soybean aphid control – are they toxic to earthworms? Evidence from laboratory and field bioassays

DIRECTIONS

1. Read the self-study exam carefully.
2. Answer the questions to this self-study exam by circling the best answer for each question.
3. Complete the self-study exam registration form.
4. Enclose a payment for processing fees of \$14.95 (Cdn) for CAAR Members, and \$24.95 (Cdn) for non-members, plus GST or HST.
5. Mail your self-study exam and payment to:
The CCA Self-Study Exam
c/o Canadian Association of Agri-Retailers
628-70 Arthur St., Winnipeg, MB R3B 1G7

SELF-STUDY EXAM:

After reading the pre-approved self-study article, please answer this 10-question exam and return it to CAAR. An exam score of 70 per cent or higher will earn you one credit in Pest Management.

1. How quickly do aphids reproduce?

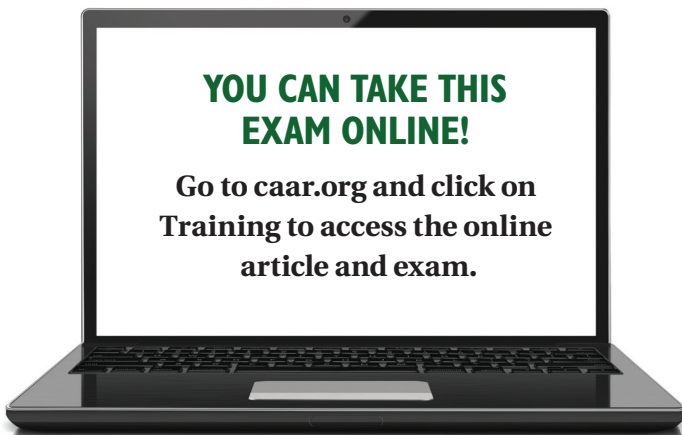
- a. 3 – 8 aphids a day and generation time of 7 – 10 days
- b. 4 – 8 aphids a day and generation time of 7 – 10 days
- c. 10 – 20 aphids a day and generation time of 5 – 10 days
- d. 15 – 20 aphids a day and generation time of 5 – 7 days

2. What naturally occurring predators can partially control aphid populations?

- a. There are no predators that can control aphid populations
- b. Lady beetles, syrphid flies and damsel bugs
- c. Lady beetles, green and brown lacewings, syrphid flies and damsel bugs
- d. Only lady beetles

3. What is dimethoate?

- a. A bacterial disease
- b. An organophosphate insecticide that kills insects and mites systemically and on contact by interfering with cholinesterase and consequently nervous system function
- c. An organophosphate fungicide that kills insects and mites systemically and on contact by interfering with cholinesterase and consequently nervous system function
- d. None of the above



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4. **When would an agricultural entomologist recommend taking action against aphids?**
- Aphid population exceeds 275 aphids per plant over 75% of the field
 - Aphid population exceeds 200 aphids per plant over 75% of the field
 - Aphid population exceeds 250 aphids per plant over 80% of the field
 - Aphid population exceeds 300 aphids per plant over 80% of the field
5. **What does IGR mean when referring to earthworms?**
- Initial growth rate
 - Instantaneous growth rate
 - Instantaneous growth ratio
 - None of the above
6. **Where were the farm trials carried out for the study?**
- Western Canada, Alberta, Saskatchewan and Manitoba
 - Quebec and Ontario
 - Quebec only
 - Prince Edward Island
7. **What was the acute lethal concentration (LC_{50}) for dimethoate in this study after 28 days?**
- 26.2 mg a.i. kg^{-1}
 - 6.18 mg a.i. kg^{-1}
 - 81.6 mg a.i. kg^{-1}
 - 27.9 mg a.i. kg^{-1}
8. **What major assumption was used to conclude why endogeic, anecic and epigeic earthworms were not negatively impacted by the field application of the insecticides?**
- The insecticides were neutralized on contact with the soil
 - Earthworms are sessile and there was no movement in plots following application of insecticides
 - Earthworms inhabit 20 – 25 cm below the soil and have no exposure to the insecticides
 - Earthworms were negatively impacted by the application of dimethoate and lambda cyhalothrin
9. **Which of these statements below were not assessed or determined during the study?**
- The lethal and sub lethal concentrations of dimethoate and lambda cyhalothrin on adult *Eisenia fetida* (Savigny) and their offspring in a laboratory bioassay
 - The toxicity of commercial insecticides Cygon 480 and Matador™ 120 EC to earthworms and their offspring in a laboratory assay
 - The toxicity level of dimethoate and lambda cyhalothrin to earthworms
 - The toxicity level of dimethoate and malathion to earthworms
10. **According to the study insecticide treatments had no effect on field earthworm populations likely because:**
- Application rates recommended to control soybean aphid were up to 3 orders of magnitude lower than the EC_{50} determined in laboratory tests
 - Application rates recommended to control soybean aphid were up to 3 orders of magnitude higher than the EC_{50} determined in laboratory tests
 - Earthworm populations were found to be resistant to the impacts of dimethoate and lambda cyhalothrin
 - Earthworm populations were too low to yield statistically significant results

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SELF STUDY EXAM REGISTRATION FORM:

(Please note: You must have your CCA Certification number on the form in order to be eligible for the CEU.)

CAAR Member Non-Member

Member Company: _____ Member Location (Town, Prov.): _____

Name: _____ Company: _____

Address: _____ City: _____ Province: _____ Postal Code: _____

CCA Certification #: _____

Payment Option: Cheque enclosed (Made payable to the Canadian Association of Agri-Retailers) VISA MasterCard

Credit Card #: _____ Expiration Date: _____

Name on Card: _____

I approve payment by credit card and certify that I alone completed this self-study course, recognizing that an ethics violation may revoke my CCA status.

Signature: _____

EXAM EVALUATION FORM (PLEASE TAKE A MOMENT TO PROVIDE US WITH SOME FEEDBACK ON THIS EXAM):

Rating Scale: 1 = Poor 5 = Excellent

Information presented will be useful in my daily crop advising activities.	1	2	3	4	5
Information was organized and logical.	1	2	3	4	5
Graphics/Tables were appropriate and enhanced my learning.	1	2	3	4	5
This article addressed the stated competency area and performance objective(s).	1	2	3	4	5

Topics I would like to see addressed in future materials: _____

