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# Performance Task: **Integrated Pest Management**

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## **PART 1: Research** **Student Directions:**

### **Your Assignment:**

Pest management is a critical problem for Washington State farmers. These farmers must balance pest control with environmental concerns regarding the use of pesticides. A popular solution to this dilemma is an approach called *Integrated Pest Management*. Your job is to educate people in the community about this approach so that they can practice IMP in their own gardens. You will explore several sources to build your knowledge base, taking notes on the tool provided. Then you will answer three research questions prior to writing your essay.

### **Steps You Will Follow:**

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To plan and write your essay, you will do all the following:

1. Watch three videos.
2. Read two articles.
3. View one poster.
4. Answer three questions about the readings and the videos.
5. Plan and write your essay.

### **Directions for Beginning:**

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You will now watch the videos and read the articles and poster. Take notes because you will want to refer to your notes while answering the three research questions and writing your essay. You may refer to any of the sources as often as you like.

### **Source Information:**

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<b>Video #1:</b>	<b><i>What is Integrated Pest Management (2:13)</i></b> <a href="https://youtu.be/FXT-5qcDkRY">https://youtu.be/FXT-5qcDkRY</a>
<b>Video #2:</b>	<b><i>IPM in Agriculture (4:14)</i></b> <a href="https://youtu.be/fzN_CJuSF8Q">https://youtu.be/fzN_CJuSF8Q</a>
<b>Video #3:</b>	<b><i>Integrated Pest Management (1:20)</i></b> <a href="https://youtu.be/jrv6sUmjdBI">https://youtu.be/jrv6sUmjdBI</a>
<b>Articles</b>	<b>#1: Q and A: United States Environmental Protection Agency</b> <b>#2: <i>What are the Benefits of Lady Bugs?</i></b>
<b>Poster</b>	<b><i>What is IPM?</i> Rutgers Univ. and the NE Center for Rural Development</b>



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### Researching Integrated Pest Management

#### NOTE TAKING TOOL

SOURCE	Defining Integrated Pest Management	How IPM Works: Strategies	Benefits of IPM
<b>Video #1:</b> Potato Farmer Explaining IPM			
<b>Video #2:</b> IPM: A Common Sense Approach			



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SOURCE	Defining Integrated Pest Management	How IPM works: Strategies	Benefits of IPM
<b>Video #3:</b> Student Video explaining Integrated Pest Management			



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### NOTE TAKING TOOL

SOURCE	Defining Integrated Pest Management	How IPM works: Strategies	Benefits of IPM
<b>Article #1:</b> Q and A: United States Environmental Protection Agency			
<b>Article #2:</b> What are the Benefits of Lady Bugs?			



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SOURCE	Defining Integrated Pest Management	How IPM works: Strategies	Benefits of IPM
<b>Poster:</b> <i>What is IPM?</i> Rutgers Univ. and the NE Center for Rural Development			

# Q and A

## Integrated Pest Management



### 1. What is IPM?

Integrated Pest Management (IPM) is an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices. IPM programs use current, comprehensive information on the life cycles of pests and their interaction with the environment. This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment. The IPM approach can be applied to both agricultural and non-agricultural settings, such as the home, garden, and workplace. IPM takes advantage of all appropriate pest management options including, but not limited to, the judicious use of pesticides. In contrast, *organic* food production applies many of the same concepts as IPM but limits the use of pesticides to those that are produced from natural sources, as opposed to synthetic chemicals.

### 2. How do IPM programs work?

IPM is not a single pest control method but, rather, a series of pest management evaluations, decisions and controls. In practicing IPM, growers who are aware of the potential for pest infestation follow a four-tiered approach. The four steps include:

#### ***Step #1: Set Action Thresholds***

Before taking any pest control action, IPM first sets an action threshold, a point at which pest populations or environmental conditions indicate that pest control action must be taken. Sighting a single pest does not always mean control is needed. The level at which pests will either become an economic threat is critical to guide future pest control decisions.

#### ***Step #2: Monitor and Identify Pests***

Not all insects, weeds, and other living organisms require control. Many organisms are innocuous, and some are even beneficial. IPM programs work to monitor for pests and identify them accurately, so that appropriate control decisions can be made in conjunction with action thresholds. This monitoring and identification removes the possibility that pesticides will be used when they are not really needed or that the wrong kind of pesticide will be used.

#### ***Step #3: Prevention***

As a first line of pest control, IPM programs work to manage the crop, lawn, or indoor space to prevent pests from becoming a threat. In an agricultural crop, this may mean using cultural methods, such as rotating between different crops, selecting pest-resistant varieties, and planting pest-free rootstock. These control methods can be very effective and cost-efficient and present little to no risk to people or the environment.

*continued*

### 2. How do IPM programs work?

#### **Step #4: Control**

Once monitoring, identification, and action thresholds indicate that pest control is required, and preventive methods are no longer effective or available, IPM programs then evaluate the proper control method both for effectiveness and risk. Effective, less risky pest controls are chosen first, including highly targeted chemicals, such as pheromones to disrupt pest mating, or mechanical control, such as trapping or weeding. If further monitoring, identifications and action thresholds indicate that less risky controls are not working, then additional pest control methods would be employed, such as targeted spraying of pesticides. Broadcast spraying of non-specific pesticides is a last resort.

### 3. Do most growers use IPM?

With these steps, IPM is best described as a continuum. Many, if not most, agricultural growers identify their pests before spraying. A smaller subset of growers uses less risky pesticides such as pheromones. All of these growers are on the IPM continuum. The goal is to move growers further along the continuum to using all appropriate IPM techniques.

### 4. If I grow my own fruits and vegetables, can I practice IPM in my garden?

Yes, the same principles used by large farms can be applied to your own garden by following the four-tiered approach outlined above. For more specific information on practicing IPM in your garden, you can contact your state Extension Services for the services of a Master Gardener.



Source: The Environmental Protection Agency



# WHAT ARE THE BENEFITS OF Ladybugs?

by Lee Morgan  
eHow Contributor

**L**adybugs, also known as ladybirds or coccinellids, are small beetles approximately 1/4-inch in length with dark orange hard shells covered in black dots. These beetles can show up in large numbers in some areas and will occasionally attempt to move indoors to cause a nuisance in the home, but overall these are bugs you want to have around because of their benefits.



## *Reduce Insect Population*

Ladybugs are predatory beetles that eat a large number of aphids (plant lice) and other harmful bugs. Even in the larval stage, ladybugs will normally consume hundreds of aphids and will grow into adults that may eat up to 5,000 aphids in a lifetime. This greatly reduces the population of harmful insects that will otherwise destroy your plants.

## *Eliminate Harmful Pesticides*

Because ladybugs eat many of the insects that cause damage to garden plants, a good population of the beetles will prevent the need for harmful pesticides. Getting ladybugs to populate your garden may be the tricky part. Products like Wheat (a mixture of wheat and yeast) can be sprayed safely on plants and will attract ladybugs. In addition, planting flowers like angelica and dill and allowing the growth of dandelions in the garden will also promote ladybug populations.

## *Beautify the Garden*

One of the most endearing qualities of a ladybug is its appearance. The deep orange to red shell with black dots, tiny black heads and wiry antennae make this beetle look like a piece of art. Ladybugs are among the best-dressed bugs in the garden. While having slugs drag slime across the garden floor may be a bit disgusting, having ladybugs crawl across the leaves of your roses or lilies just adds to the visual appeal.

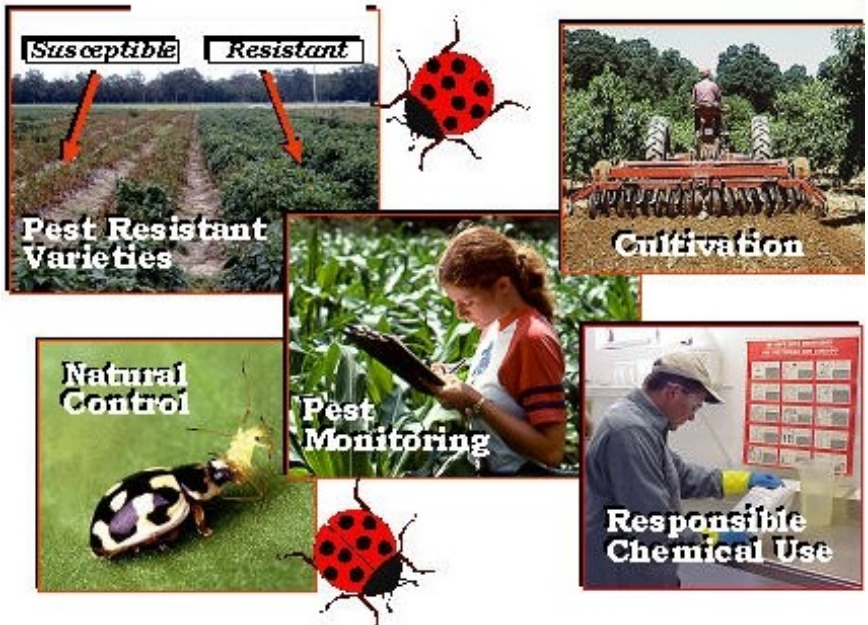




# WHAT IS IPM?

Farmers use **Integrated Pest Management (IPM)** strategies to prevent crop damage from insect, weed, and disease pests.

## IPM PRACTICES INCLUDE:



## WHY SHOULD YOU CARE?

Because IPM practices help farmers:

- conserve our environment
- produce quality crops
- maintain farm profitability



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### **Research Questions for Part 1:**

1. **Explain what Integrated Pest Management is and why it benefits both the farmers and the environment. Use information from two of the sources to support your answer, citing the sources you select. (*Claim 4, Target 2*)**

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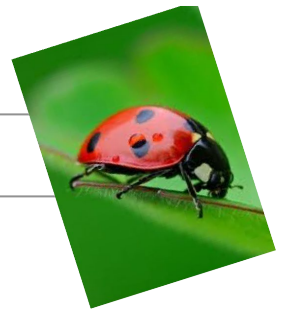




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### **Part 2: Field Inv**

Students can plan and plant a school or community garden, practicing integrated pest management techniques. They can keep a journal, recording the growth of the plants and how the practices are working to keep the garden healthy. They can also visit a farm where these practices are in effect, making observations and interviewing the farmer.

Discussion questions might include the following:

- What do we mean by integrated pest management?
- How do IPM practices impact the environment?
- What barriers exist to using IPM practices?
- How are farmers in Washington State adopting the IPM practices?

In addition, teachers may want to consider one or more of the following field investigations:

- PLT- Biodiversity Module-Activity 3: Potatoes, Pesticides, and Biodiversity:  
<https://www.plt.org/blog/activity/biodiversity-activity-3-potatoes-pesticides-biodiversity/>

Other ideas for field investigations:

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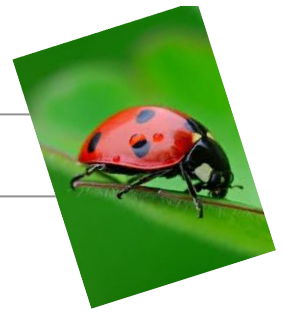
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### **Part 3: Essay**

#### **Student Directions:**

You will now review your notes and sources, plan, draft, and revise your essay.

You may use your notes from day 1 and refer to the sources.

Now read your assignment and the information about how your essay will be scored. Then begin your work.

#### **Your assignment:**

You have been asked to educate the people in your community about Integrated Pest Management as a preferred approach to farming and home gardening. In your essay, explain what Integrated Pest Management is, how it works and why it is a preferred method of pest control. Your goal is for all community members to understand and apply this method of pest control to their own gardens. Use information from both print and video sources in your essay making sure that you reference the sources that you use.

#### **How your essay will be scored:**

The people scoring your essay will be assigning scores for

- **Statement of Purpose / Focus**– how well you clearly state and maintain your controlling idea or main idea
- **Organization**– how well the ideas progress from the introduction to the conclusion using effective transitions and how well you stay on topic throughout the essay
- **Elaboration of Evidence**– how well you provide evidence from sources about your topic and elaborate with specific information
- **Language and Vocabulary**– how well you effectively express ideas using precise language that is appropriate for your audience and purpose
- **Conventions**– how well you follow the rules of usage, punctuation, capitalization, and spelling

#### **Now begin work on your essay.**

Manage your time carefully so that you can:

- Plan your essay
- Write your essay
- Revise and edit for a final draft





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**Planning My Essay**

<b>Essay Components</b>
Introduction: Capture the reader's attention
Statement of purpose or controlling idea:
What Integrated Pest Management is:
How Integrated Pest Management works:
Why home gardeners should consider using Integrated Pest Management:
Conclusion:

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**Informative / Explanatory Writing Rubric (Grades 6-11)**  
**Scoring Version**



Score	4	3	2	1
Statement of Purpose/Focus	<p>The response is fully sustained and consistently and purposefully focused:</p> <ul style="list-style-type: none"> <li>consistent or main idea of a topic is clearly communicated, and the focus is strongly maintained for the purpose, audience, and task</li> </ul>	<p>The response is adequately sustained and generally focused:</p> <ul style="list-style-type: none"> <li>controlling or main idea of the topic is clear, and the focus is mostly maintained for the purpose, audience, and task</li> </ul>	<p>The response is somewhat sustained and may have a minor drift in focus:</p> <ul style="list-style-type: none"> <li>controlling or main idea of a topic may be somewhat unclear, and the focus may be insufficiently sustained for the purpose, audience, and task</li> </ul>	<p>The response may be related to the topic but may provide little or no focus:</p> <ul style="list-style-type: none"> <li>controlling or main idea of the topic may be somewhat confusing or ambiguous; response may be too brief or the focus may drift from the purpose, audience, and task</li> </ul>
Organization	<p>The response has a clear and effective organizational structure creating unity and completeness:</p> <ul style="list-style-type: none"> <li>consistent use of a variety of transitional strategies to clarify the relationships between and among ideas</li> <li>effective introduction and conclusion</li> <li>logical progression of ideas from beginning to end; strong connections between and among ideas, with some syntactic variety</li> </ul>	<p>The response has an evident organizational structure and a sense of completeness, though there may be minor flaws and some ideas may be loosely connected:</p> <ul style="list-style-type: none"> <li>adequate use of transitional strategies with some variety to clarify the relationships between and among ideas</li> <li>adequate introduction and conclusion</li> <li>adequate progression of ideas from beginning to end; adequate connections between and among ideas</li> </ul>	<p>The response has an inconsistent organizational structure, and flaws are evident:</p> <ul style="list-style-type: none"> <li>inconsistent use of transitional strategies with little variety</li> <li>introduction and conclusion, if present, may be weak</li> <li>uneven progression of ideas from beginning to end; and/or formulaic; inconsistent or unclear connections between and among ideas</li> </ul>	<p>The response has little or no discernible organizational structure:</p> <ul style="list-style-type: none"> <li>few or no transitional strategies are evident</li> <li>introduction and conclusion, if present, may be missing</li> <li>frequent extraneous ideas may be evident; ideas may be randomly ordered or have an unclear progression</li> </ul>
Elaboration of Evidence	<p>The response provides thorough and convincing support/evidence for the controlling idea and supporting idea(s) that includes the effective use of sources, facts, and details.</p> <ul style="list-style-type: none"> <li>comprehensive evidence from sources is integrated; references are relevant and specific</li> <li>effective use of a variety of elaborative techniques*</li> </ul>	<p>The response provides adequate support/evidence for the controlling idea and supporting idea(s) that includes the use of sources, facts, and details:</p> <ul style="list-style-type: none"> <li>adequate evidence from sources is integrated; some references may be general</li> <li>adequate use of some elaborative techniques*</li> </ul>	<p>The response provides uneven, cursory support/evidence for the controlling idea and supporting idea(s) that includes uneven or limited use of sources, facts, and details:</p> <ul style="list-style-type: none"> <li>some evidence from sources is weakly integrated, imprecise, or repetitive; references may be vague</li> <li>weak or uneven use of elaborative techniques*; development may consist primarily of source summary</li> </ul>	<p>The response provides minimal support/evidence for the controlling idea and supporting idea(s) that includes little or no use of sources, facts, and details:</p> <ul style="list-style-type: none"> <li>evidence from the source material is minimal or irrelevant; references may be absent or incorrectly used</li> <li>minimal, if any, use of elaborative techniques*</li> </ul>
Language	<p>The response clearly and effectively elaborates ideas, using precise language:</p> <ul style="list-style-type: none"> <li>vocabulary is clearly appropriate for the audience and purpose</li> <li>effective, appropriate style enhances content</li> </ul>	<p>The response adequately elaborates ideas, employing a mix of precise with more general language:</p> <ul style="list-style-type: none"> <li>vocabulary is generally appropriate for the audience and purpose</li> <li>generally appropriate style is evident</li> </ul>	<p>The response elaborates ideas unevenly, using simplistic language:</p> <ul style="list-style-type: none"> <li>vocabulary is uneven or somewhat ineffective for the audience and purpose</li> <li>inconsistent or weak attempt to create appropriate style</li> </ul>	<p>The response is vague, lacks clarity, or is confusing:</p> <ul style="list-style-type: none"> <li>vocabulary is limited or ineffective for the audience and purpose</li> <li>little or no evidence of appropriate style</li> </ul>

Score	2	1	0
Conventions	<p>The response demonstrates a command of conventions:</p> <ul style="list-style-type: none"> <li>adequate use of correct sentence formation, punctuation, capitalization, grammar usage, and spelling</li> </ul>	<p>The response demonstrates partial command of conventions:</p> <ul style="list-style-type: none"> <li>limited use of correct sentence formation, punctuation, capitalization, grammar usage, and spelling</li> </ul>	<p>The response demonstrates little or no command of conventions:</p> <ul style="list-style-type: none"> <li>infrequent use of correct sentence formation, punctuation, capitalization, grammar usage, and spelling</li> </ul>

NS	Unintelligible, in a language other than English, off-topic, insufficient evidence (incomplete) or copied text. (Off-purpose writing will still receive a score in Conventions.)
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\*Elaborative techniques may include the use of personal experiences that support the controlling idea.