### Integrated Pest Management #4

**Instructor:** Terri Cummings/Deb Harman  
**Date:** June 26, 2013

| **Course Title:** | Production Horticulture  
| **Specific Topic:** Integrated Pest Management IPM #4 – Final Project

**Writing Assignment:** An expository essay written in technical format to demonstrate the knowledge of IPM.

| **Performance Objectives:** | After completion of the lesson, students will be able to:  
| | 1. Write an IPM Plan for the Canby High School Greenhouse using the technical writing criteria.  
| | 2. |

| **Standards:** CCSS  
| **CTE & CCSS** |  
| CCSS: Writing Text Types and Purposes  
| 2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.  
| 9. Draw evidence from informational texts to support analysis reflection, and research.  
| CTE:  
| Plant 02.04. Develop a Pest Management Plan for specific plants and crops

**Assessment:** Written Pest Management Plan for the Canby High School greenhouse.

**Materials:** Cube It – Cube  
IPM Reading Summary Sheet (3 pages)  
IPM Plan Sample  
IPM Plan Template

**Procedure:** **Literacy Strategy used:**  
Cube It – cubes  
Reading Summary Sheet – Graphic organizer  
Sample Plan  

**Entire Class:** Introduction and Method of activating prior knowledge –
Students will review using the Cube It – cube to review the concepts from the previous day’s activity.
Students will use a graphic organizer to incorporate 2 of the concepts and then all four of the concepts of IPM.
Students will see a sample IPM plan.
Students will write their own IPM plan for the Canby High School Greenhouse.

**Method of setting purpose** –
Students will review using the Cube It – cube to review the concepts from the previous day’s activity.
Students will use a graphic organizer to incorporate 2 of the concepts and then all four of the concepts of IPM.
Students will see a sample IPM plan.
Students will write their own IPM plan for the Canby High School Greenhouse.

**Individual:**

Students will write their own IPM plan for the Canby High School Greenhouse.

**Group:**

Students will review using the Cube It – cube to review the concepts from the previous day’s activity.
Students will use a graphic organizer to incorporate 2 of the concepts and then all four of the concepts of IPM.
Students will see a sample IPM plan.

**Entire Class:**

<table>
<thead>
<tr>
<th>Application of Material:</th>
<th>Be able to evaluate a situation and give a solution for the problem.</th>
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<tbody>
<tr>
<td>Extension Questions:</td>
<td>Who would use an IPM Plan? What types of companies have IPM Plans?</td>
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<td></td>
<td>Why is it that there is no right or wrong answer to an IPM Plan?</td>
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<td></td>
<td>When using Chemical Control, what do you need to make sure that you check before using this form of control?</td>
</tr>
<tr>
<td>Accommodations needed:</td>
<td></td>
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</tbody>
</table>
**Biological Control:**

**Definition from the text:**

**Definition in your own words:**

**Example of Biological Control:**

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**Cultural Control:**

**Definition from the text:**

**Definition in your own words:**

**Example of Cultural Control:**

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**Apply your Knowledge**

How can **Biological Controls and Cultural Controls** be used in an IPM Plan?
Physical and Mechanical Control:
Definition from the text:
Definition in your own words:
Example of Physical and Mechanical Control:

Chemical Control:
Definition from the text:
Definition in your own words:
Example of Chemical Control.

Apply your Knowledge
How can Physical and Mechanical Control and Chemical Control be used in an IPM Plan?
Apply your Knowledge

How can Biological Control, Cultural Control, Physical and Mechanical Control, and Chemical Control be used together in an IPM Plan?
Sample IPM Plan

Statement of Purpose:
The purpose of this IPM Plan is to guide the use of environmentally sensitive pest management strategies and least toxic control methods at Paradise Farm and Nursery to enhance the health and safety of nursery employees and protect the environment. This plan will also include how to notify employees of the nursery as to the pest management activities. The plan also includes how to notify in advance the use of any pesticide application other than the least toxic pesticide.

Goals:
The goals of the IPM program at Paradise Farm and Nursery are:

1. Protect human health by using the least toxic products for pest control and eradication.
2. Inspect and monitor pest populations and locations to enhance control strategies.
3. Minimize the quantity and toxicity of chemicals use for pest management
4. Minimize environmental impacts by choosing species specific pesticides for specific areas.
5. Establish clear criteria to determine when the economic threshold has been reached.
6. Provide signage to warn employees and visitors of pesticide applications.

Program Components:
IPM promotes the use of a range of prevention and non-chemical approaches to control pest populations. The least toxic pesticides will be used at all times.

Paradise Farm and Nursery grows the following crops:
- Orchard Grass Hay
- Christmas Trees
- Pumpkins and Squashes
- Tomatoes
- Peppers (several varieties)
- Beans

The primary pests and disease at Paradise Farm and Nursery are:
- Aphids
- Gophers
- Cucumber Beetles
- Powdery Mildew
The program consists of the following steps:

1. Virus Free Vegetable Seed will be used. (Cultural Control)
2. Rotate vegetable crops yearly. (Cultural Control)
3. Monitoring and Scouting

Vegetables: If Cucumber Beetles reach the economic threshold, a powder SEVIN will be put on the Vegetable plants. (Chemical Control)

If Powdery Mildew is noticeable, the watering technique will be watched to see if excessive moisture on the tops of the leaves is causing the problem. Overhead watering will stop and use the flooding method instead. If this is unsuccessful, a biological fungicide Serenade. (Cultural Control, Chemical Control).

Christmas Trees: If Aphids reach the economic threshold then a liquid Pyrethron will be sprayed on the trees.

Entire Farm and Nursery: If Gophers become an issue, a Gopher Blaster will be used to collapse the underground tunnels to rid of Gophers. (Mechanical Control)

4. If other issues arise, the least toxic pesticide will be used to take care of the issue at hand. (Chemical Control)

Signage:

Signs will be posted prior to any spraying. Signs will be posted at the entrance to each area being sprayed on the Farm and Nursery.

Signs will be posted with the Chemical, time sprayed and reentry time period. Employees are to read all signs posted.

Record Keeping:

The attached spreadsheet will be filled in two times a day – once in the morning and once in the late afternoon. Employees will scout and monitor the Farm and Nursery. When the economic threshold is met, action will be taken.
An Integrated Pest Management Plan is a pest control strategy that relies on multiple control practices.
- Biological Control
- Cultural Control
- Physical/Mechanical Control
- Chemical Control
- It establishes economic threshold levels in determining control actions.
- Trend is to reduce pesticides by using other methods of control

Your plan will consist of the following sections:
1. Statement of Purpose
   a. What does this plan cover?
2. Goals of the IPM Plan
   a. You should have a minimum of three goals
3. Program Components
   a. List what you will do in reference to
      i. Monitoring and Scouting
      ii. Types of Control to be used.
      iii. Definitions of the Controls to be used.
4. Explanation of the Program
   a. Explain in detail what your program consists of – examples:
      i. What insects will you be targeting?
      ii. What specific pesticides will you use for the different pests and how often will you use them?
      iii. What specific beneficials will you use to control the pests and how often will you use them?
      iv. What type of cultural practices are you changing and how will these make a difference?
      v. How will you incorporate Physical/Mechanical control?

5. Signage
   a. Where will you post your signs when using pesticides?

6. Record Keeping
   a. Create a form that goes along with the Canby High School Greenhouse to log down what insects populations are in the greenhouse and their locations.

7. What if's......
   a. Explain how you will change your plan if this happens....
   b. Be sure to include two What If’s....

Some of these sections can be combined. For example, in the sample sections 3, 4 and 7 have been combined. When combining sections, it needs to be clear that you have included them.