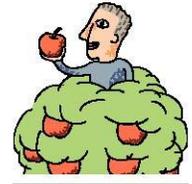


Apple Orchard IPM Program Development Simulation

Your role: Pretend you are an apple orchard farmer in Pennsylvania with red mites in the orchard.

Your goal: Grow healthy apples to sell for profit \$\$\$\$ utilizing IPM strategies

Your problem: a pest called the **European Red Mite (*Panonychus ulmi*)**



of nest possibl

As you might expect, it is unlikely that a farmer would know everything about every type of pest possible and the particulars about the IPM program for that pest. Therefore, just as a farmer, you are going into this without a whole lot of knowledge about particulars. **The resources available to you on the web are exactly what is available to the general public and farmers.** (In fact, if you had just one apple tree in your yard, theoretically you could consider that as your orchard...) Right now, you will be using this class time to gather the information about red mite control, and you will need to decide how and when to deal with your red mite pest problem. Using the guidelines below, you will apply IPM principles to deal with your pest problem, recording information and answering questions in regards to this specific pest threat.

To Begin, read over the information at <http://agsci.psu.edu/tfpg/part2/AGRS045-02-03.pdf>

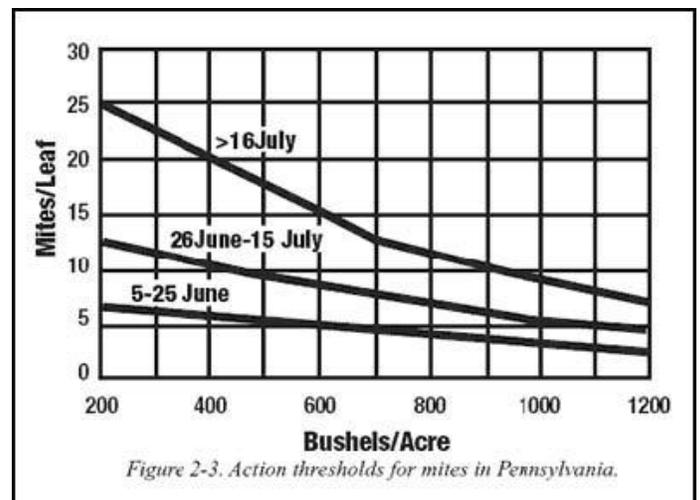
➤ **NOTE: (you just need to read over the section on red mites starting on pg. 108 of the PDF file), then answer the following questions on a separate piece of paper.**

1. Describe the type of damage mites do to plants and apple trees.
2. How would you calculate/determine the percent infestation of mites in your orchard?
3. If you determined infestation to be **65%**, what would be the values below? See http://resources.cas.psu.edu/TFPG/Table2_3.pdf List the values in the table below.

Expected density in mites/leaf	Limits of mite populations in mites/leaf ^b

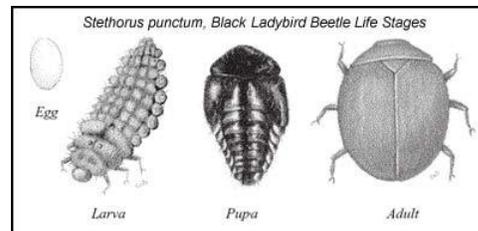
4. What is the Procedure for Determining **Action Threshold** ? Why is it important to know this?

5. If the mites/leaf level was **15 mites per leaf** on **July 30th** and your require productivity of **500 bushels/acre** to stay in business, would you treat or not treat the mite problem according to the action threshold graph on the right? →



Refer back to <http://agsci.psu.edu/tfpg/part2/AGRS045-02-03.pdf> and the red mite section to answer the next series of questions.

5. What is **Stethorus**? What is its function in apple orchard management?



6. What is the basic procedure for monitoring beneficial predatory insects like **Stethorus**?

7. Why is a predatory insect to mite ratio of **2.5** so important? How is this related to determining if chemical pesticides are needed?

8. Choose the best chemical pesticide for **ERM (ERM = European Red Mite)** from the link below.

(see http://resources.cas.psu.edu/TFPG/Table4_7.pdf)

Why did you choose that particular pesticide?



Immature stage

RED MITE (apple pest)

9. What are some suggestions on chemical pesticide application effectiveness and strategies according to the website?

<http://agsci.psu.edu/tfpg/part2/AGRS045-02-03.pdf>

10. **Go to this link**⇒ <http://hazard.com/msds/index.php> What is the MSDS information on your pesticide of choice? What precautions are necessary in dealing with exposure to your pesticide of choice? Consult the MSDS info. If you cannot find your specific chemical try searching the internet.

11. Name and describe the utilization of another predatory insect besides **Stethorus**. see (<http://agsci.psu.edu/tfpg/part2/AGRS045-02-04.pdf>)

12. Which pesticides would be the worst in term of negatively affecting beneficial insects like **Stethorus**? http://resources.cas.psu.edu/TFPG/Table4_5.pdf

13. What are some other pest management options/strategies for an apple orchard besides beneficial insects and pesticides? You may want to search the Internet or refer to your text Ch. 13.