APBI- 428 (Integrated Pest Management)

Course Overview

There are six units:

Unit 1: Introduction to Pest Management

Unit 2: General Ecological Considerations in Integrated Pest Management

Unit 3: Arsenal of Methods for Manipulating Pest Populations in Integrated Pest Management Programs

Unit 4: Monitoring and Forecasting Procedures for Pests Used in Integrated Pest Management

Unit 5: Integrated Pest Management Strategies

Unit 6: Integrated Pest Management Implementation

The course consists of assignments (60%) and a final exam (40%). All reading material is posted online.

There are 4 assignments that must be completed as part of this course. The first assignment covers biotechnology and genetically-modified organisms and their role in IPM. The other three assignments involve setting up an IPM system for a particular crop in a specified location. For your crop you may choose from (1) potato, (2) apple, or (3) greenhouse tomato AND cucumber (4) onion And carrots (5) Cabbage AND broccoli (5) Small fruit crops such as blueberries AND strawberries. The location (province or state) is also your choice, but you should be as specific to your chosen location as possible. If you cannot find information specific to your location, suggest possible options based on information available from other locations. These three assignments allow you to work through the whole process of setting up an IPM system for your chosen crop. They include identifying the pests (including diseases and weeds), as well as the strategies and tactics that could be used to control these pests and how you could monitor pest numbers and damage. In the final assignment you will put all the pieces together to form one integrated control system. Throughout these assignments, remember that integrated pest management is based on managing pests in an economically and environmentally sound manner.

Assignment # 1 (Due Jan 27)

This assignment is based on Unit 3, Lesson Six – Biotechnology for Pest Management. The assignment is based on the readings contained within the lesson, which should give you a basic understanding of genetically-modified organisms (GMOs). Using this knowledge and other knowledge that you may gain from further reading, you will be able to participate in a discussion forum that will be set up for the assignment. You are

encouraged to air your views on the subject, ask questions and discuss the topic and its issues with other participants. Following these discussions, you are required to summarise the role of biotechnology in IPM today, its advantages and disadvantages and the ethical dilemmas associated with the release of GMOs into the environment. You should finish your paper with a paragraph that gives your views on GMOs, whether you would use them as a grower or buy them as a consumer. This assignment should be no longer than 2 pages, so you must be concise, making sure that you highlight the most important issues. Whatever your own personal views are on this subject, make sure that you present both sides of the debate.

Assignment # 2 (Due Feb 24)

This assignment should be completed once you have worked through Unit 2, General Ecological Considerations in IPM. It requires you to gather the basic ecological information required to set up an IPM system. For your chosen crop, compile a list of the major pests (animal, disease and weed) that may be frequently encountered by growers. You should prioritise the problems in order of their probability of requiring management action, starting with the most probable. What are the life histories of these species and where could control options be applied? Also list potential beneficial insects and other organisms in the crop ecosystem. Finally, briefly review the phenology of the crop, indicating when particular pests and diseases are likely to appear and threaten the crop.

Assignment # 3 (Due Mar 24)

This assignment should be completed once you have worked through Unit 3, Arsenal of Methods for Manipulating Pest Populations in IPM Programs. It requires you to identify possible management tactics that could be used to manipulate the pest populations of your crop. List the currently recommended or used insecticides, fungicides and any other chemical pest management products. Outline any alternative pest management products currently available (e.g., microbial insecticides and herbicides). Indicate if any commercially available biocontrol agents are applicable. What cultivation practices can contribute to pest, weed and disease management? Are there physical of mechanical controls or barriers that can be used? What about cultural controls? Consider all the options that may be available for your crop in your location.

Assignment # 4 (Due Apr 7)

This last assignment should be completed once you have finished Unit 5. It involves integrating the information that you acquired in Assignments 2 and 3 to synthesize your own IPM program for the crop of your choice. You will also have to include information on surveillance and monitoring for your major pest species. How can the incidence and intensity of pests, diseases and weeds be monitored in the crop? Outline visual sampling schemes. Are there specific trapping (e.g., pheromone) or sampling methods available? Provide an overall plan for monitoring key pests in the crop and integrate this with the information from the previous two assignments. You should now have a workable IPM plan that will manage the key pest species of your chosen crop.