Introduction

This poster describes an active learning-based approach to resident education and outreach education that is widely applicable to those conveying principles of integrated pest management (IPM) to diverse audiences. Three examples of experiential learning activities are presented that we have used to teach weed ecology and management. The activities were (1) a two-day weed ecology workshop at The University of the West Indies-Mona Campus in collaboration with The Caribbean Agricultural Research and Development Institute (CARDI) (2) a weed germination periodicity (GP) demonstration used for undergraduate resident education and (3) a series of outreach education field days based on the concept of ecologically-based weed management (EBWM). Learning outcomes were effectively realized with these approaches and there are many logical extensions of this active learning approach to teaching other weed management and IPM principles.

Guiding Integrated Pest Management Principles

Larry Pedigo proposed these three principles for insect pest management at the Second National IPM Symposium in 1994 (Mortensen 1997). We use these principles to shape our thinking when developing weed ecology and management educational activities. Briefly, the first IPM principle aims to lower the pest's general equilibrium density. The goal of the second principle is to raise the density of the pest at which economic damage occurs. And finally, the third principle states that when pest populations increase significantly management action should be taken to truncate population peaks. These important themes emerge in all of the experiential learning activities discussed here.

Weed Germination Periodicity Demonstration

The objective of this activity was successfully implemented as an active learning exercise centered around teaching the concept of weed species GP and related factors that ultimately influence the emerged weed flora present in producers’ fields as well as to improve the students’ plant identification and field sampling skills.

Results

Through our interaction with local experts Dr. Jane Cohen and PhD candidate Nickieisha Reid of The University of the West Indies, who facilitated the use of local weed species and material for the workshop, the experiential nature of the weed identification exercises proved to be valuable for all the workshop participants including the instructor. Though it may seem like an obvious consideration, the importance of having relevant material and topics for the target audience cannot be overstated when developing experiential learning activities when a change in management decision making behavior is the primary educational objective.

EBWM Field Days

During the 2005 field season a series of outreach education field days for agricultural professionals were developed around the concept of ecologically based weed management. Experiential activities directly related to IPM principles 1-3 above were developed on the following themes: effects of cover crop use and cover crop type on weed suppression, effect of timing of soil disturbance on weed suppression and periodicity in weed emergence and the role of weed seed predation in in conventional and organic cropping systems.

Implications

We have found that the value of experiential learning in effective communication of important weed ecology principles shapes the way we design our educational activities. By applying active learning techniques (based on guiding IPM principles) like those described here to a variety of compelling research questions learning outcomes and their implications for IPM have been realized. From the instructor’s perspective, activities like these only serve to reinforce our commitment to and development of inquiry-based learning strategies.

References


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