Integrated Pest Management in Hawaii

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Integrated Pest Management in Hawaii:

It’s role in water resource management and environmental stewardship.
What is Integrated Pest Management (IPM)?

A holistic system of pest management which utilizes a variety of techniques to achieve economic control of target pests while minimizing the impact on non-target organisms.
The Essential Elements of IPM

- Economic Thresholds
- Scouting and Monitoring
- Proper Pest Identification
- Employing a variety of control techniques
Shift in Agricultural Dynamics

- Sugar plantation closures in the 1990’s: Oahu, Hawaii, Maui, Kauai
- Displaced sugar workers began farming
- Southeast Asian immigrants began farming in the late 70’s and have increased through the present time
- Short term row crops replacing long term sugarcane plantings
Challenges Relative to Shift in Farming Population

- Many plantation workers did/do not have farming skills
- Immigrant farming population unfamiliar with U.S. regulatory environment
Environmental Challenges

- Intensively cultivated row crops have high pesticide and fertilizer requirements
- Gaps in training opportunities and education for new and immigrant farmers
- Ill advised and unnecessary pesticide use
- Large areas of bare ground fallow fields
IPM Initiatives to Address Environmental Challenges

- Training in basic IPM practices to new and immigrant farmers
- On going studies using cover crops for weed control and soil nutrient stabilization
Field Identification Guide to Common Pests Found in Waialua Farmers Cooperative

Waialua, Oahu, Hawaii

January 2001

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Leafminer life stages (greatly enlarged)

A. Leafminer maggots emerging from leaf mine (20X normal size).

B. Leafminer adult on leaf surface (20X normal size).

C. Typical serpentine leafminer damage.

D. Leafminer pupa on leaf (15X normal size).

Field Identification Guide to Common Pests Found in Willamette Farmers Cooperative
January 2001
Summary for IPM with New and Immigrant Farmers in Waialua

- Understanding of the Agro-ecosystem
- Proper identification of pests
- Proper scouting and monitoring for pests
- Alternative control measures
- Timely use of low risk, highly effective pesticides if needed
Cover Cropping for Reducing Soil Nitrogen Following Seed Corn Production in the Kaiaka-Waialua Watershed, Oahu

Hawaii Farm Bureau Federation
Pioneer Hi-Bred International, Inc.
University of Hawaii at Manoa
USDA Natural Resources Conservation Service
Waialua High School
Waialua High School Students

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Kaiaka-Waialua Watershed is a major area for diversified agriculture on Oahu.

Runoff water from agricultural fields can be a source of non-point pollution in streams, ocean water, and groundwater.

Nitrogen fertilizer is one type of non-point source pollutant.
Project Objective

To investigate cover cropping as a way to manage nitrogen runoff from agricultural fields.
Procedure

- Select a recently harvested corn field
- Sample soil after corn is plowed down
- Test soil for total nitrogen
- Establish oat and barley cover crops
- Re-sample and test soil for total nitrogen after cover crops are established
Project Results

- This project started in July 2002 and will continue until May 2003
- Cover crop plantings began in September 2002
- Field Day will be scheduled in Spring 2003
Expected Outcomes

- Reduced pesticide and fertilizer use by small farmers
- Less sediment contamination of nearby water bodies
- Continued training, research, and education efforts required