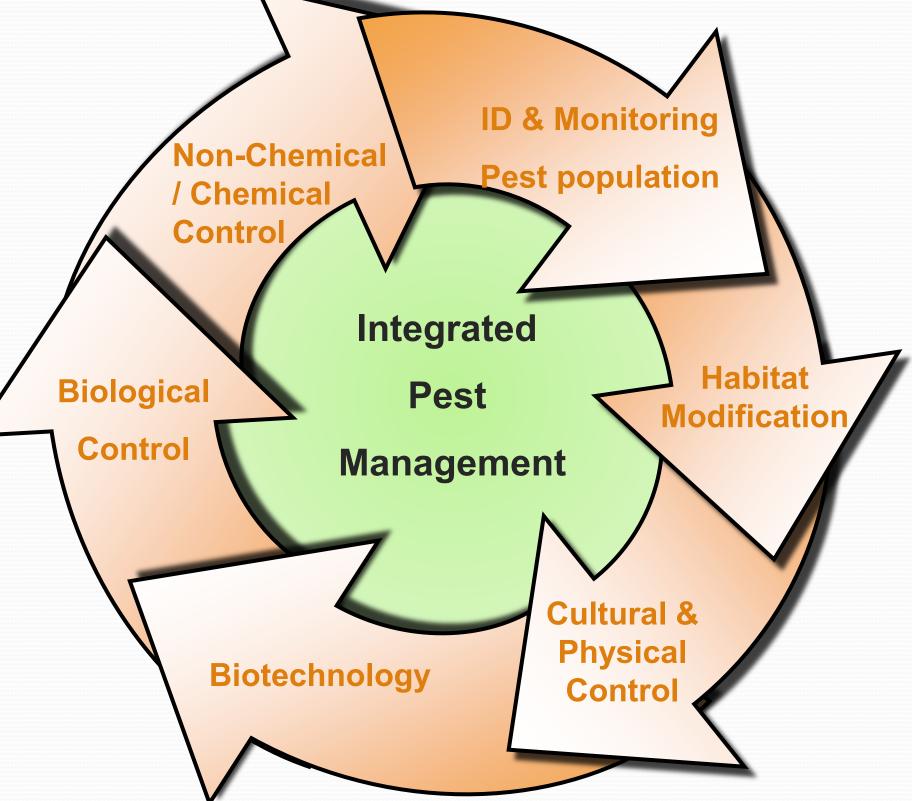
# Integrated Pest Management for Soil & Soil-less Systems



J. Sugano, S. Fukuda, J. Uyeda, K.-H. Wang, J. Tavares, T. Radovich, M. Kawate, R. Shimabuku, C. Tamaru, A. Hara, and B. Fox University of Hawaii at Manoa, College of Tropical Agriculture and Human Resources

IPM uses **all possible pest control methods** in a well organized and harmonious way in order to achieve <u>long-term</u> pest control. It is important to understand the crop, pests, control strategies, mode of actions, and pest control limitations. The primary goal of IPM is to retain or improve production without <u>negatively</u> impacting the environment, human and aquaculture safety.



## BENEFITS

- ✓ Effective
- ✓ Flexible
- ✓ Informed decision makers
- ✓ Potential cost savings
- ✓ Environmentally responsible
- $\checkmark \ {\rm Enhances \ worker \ and \ workplace \ safety}$
- ✓ High decision making
  - ✓ Established economic threshold
  - ✓ Selection of the least hazardous control
  - ✓ Chemicals applied on an 'as needed' basis

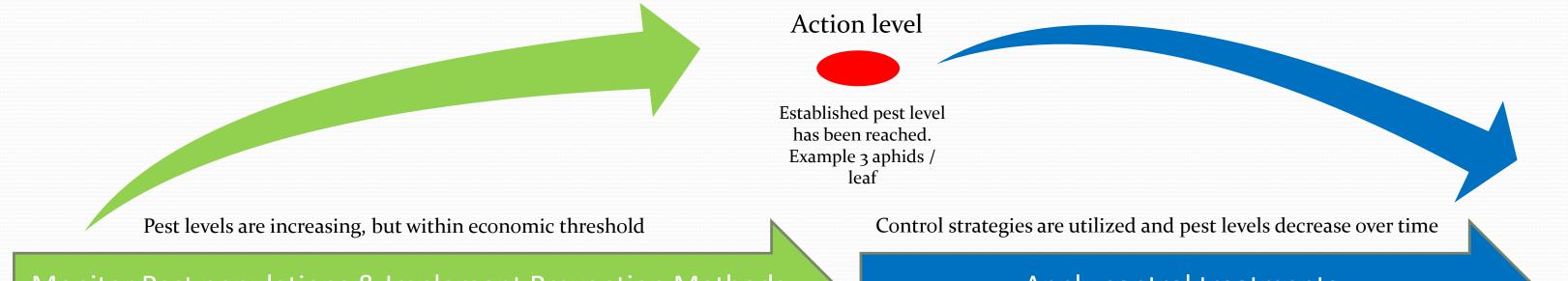


Monitoring allows growers to: assess pest population levels; determine pest activity; track changes over time, create a field history.

Important to monitor: pest population, level of infestation, plant location, natural enemies, time of the year, contributing conditions, environmental conditions, etc.

## Action Thresholds

Action thresholds are an established levels that a pest population must reach before pest control action is needed.



Monitor Pest populations & Implement Prevention Methods

Apply control treatments

### PREVENTATIVE TACTICS: Habitat Modification

Physical Measures Cultural Measures Biotechnology Enhance Natural Enemies

#### **CONTROL STRATEGIES**

Release Bio-control agents Implement Non-Chemical Control Chemical Control (as last resort)