Issues in Sustainable Agriculture - Integrated Pest Management

Sustainable Agriculture Stakeholders Meeting
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Definition of Integrated Pest Management (IPM)

Integrated - various parts or aspects linked or coordinated

Pest - insect or other animal, pathogen or weed

Management
  the process of dealing with or controlling things or people
  the treatment or control of diseases, injuries, or disorders…
Plant Health Care

Non - biological factors
Biological factors
Interactions of non-biological and biological factors
IPM Principles

Knowledge-based
  Monitoring
  Implementation
Goal-based
  Optimize pest management
  Threshold for acceptable levels
  Cost - benefit analysis
Management options

Cultural
Physical controls
Natural resistance
Biological controls
Chemical controls
Management Options

Cultural
  Providing environment favoring plant, not pest
  Climate, irrigation, nutrition

Physical control
  Preventing pests from getting to plants
  Exclusion, trapping

Natural resistance
  Genetic basis
Management Options

- Biological control
  - Predators
  - Parasites
  - Diseases
- Chemical control
  - Natural
  - Synthetic
Issues for IPM implementation

Cost-related issues
- Cost-benefit analysis
- IPM = I Pay More?
- Balancing producer costs and social / environmental costs (externalities)
Issues for IPM implementation

Structural conflicts related to sustainability goals

Water re-use vs. pathogen spread
Nutritional management vs. susceptibility to pests
Nutritional management for plant health vs. environmental impact
Issues for IPM implementation

Structural conflicts, continued

- Action threshold vs. prevention based on prediction
- Pesticide rotation vs. lowest toxicity
- Weed control - alternate host for pest vs refuge for beneficial
- Genetic modification for pest resistance vs. ecological risk
Implementation of IPM must evolve to a higher standard.
Standards must evolve with the ability to implement IPM.