

Issues in Sustainable Agriculture - Integrated Pest Management

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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

Sustainability and IPM

Implementation of IPM must evolve to a higher standard.

Standards must evolve with the ability to implement IPM.