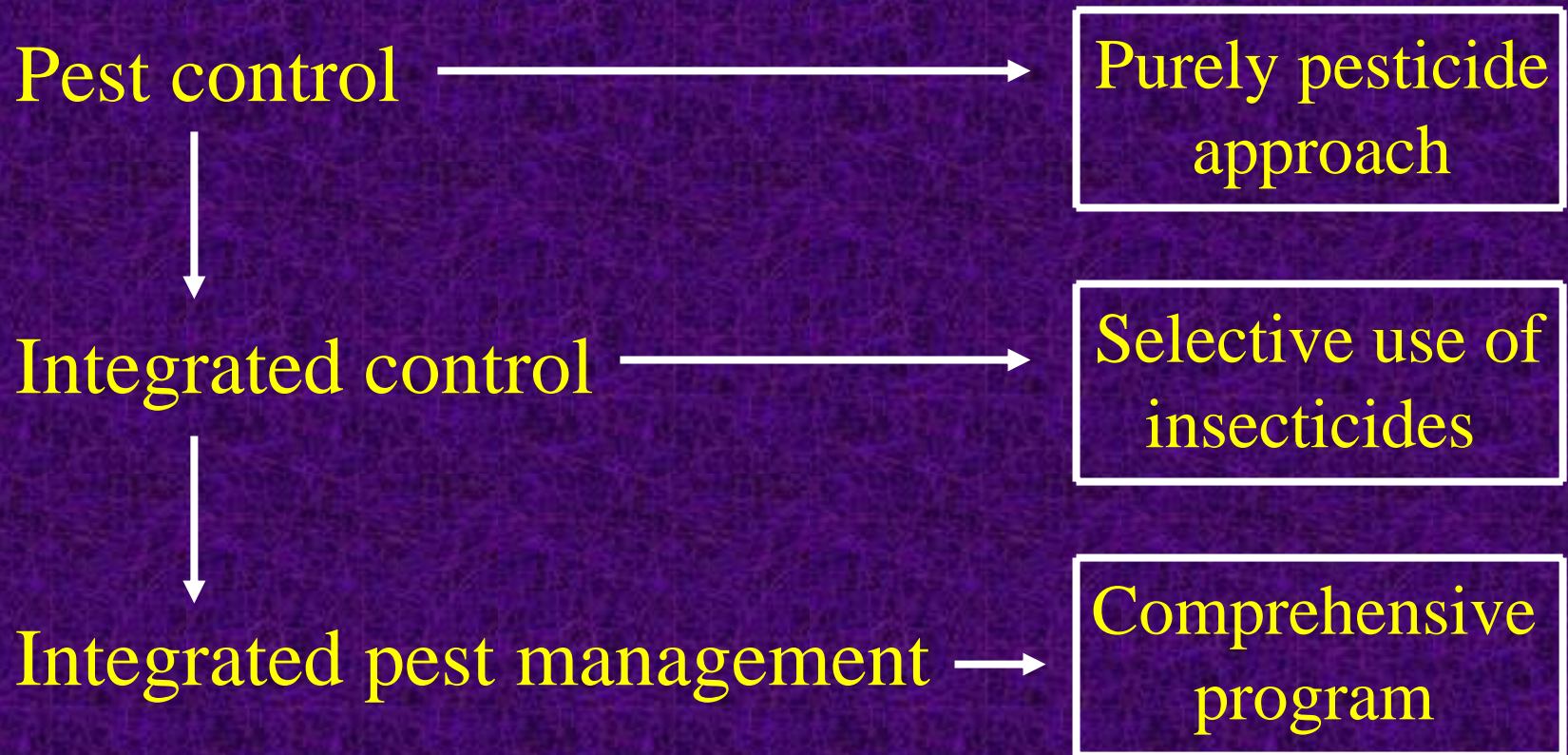


Lecture I: Integrated Pest Management



❖ Key terms to be included in an IPM definition

- ✓ Comprehensive
- ✓ Multiple strategies
- ✓ Tolerable levels
- ✓ Environmental quality

IPM (definition)

- Integrated pest management is a comprehensive pest technology that uses a combination of techniques or strategies, including monitoring, biological control, cultural practices, resistant varieties and pesticides to reduce pests status to tolerable levels while protecting non-target organisms and maintaining the quality of the environment

Historical highlights of pest management

- 2500 BC earliest record of pest control use of sulphur (ancient Babylonians)
- 800 BC Egyptians and Chinese used insecticides formulated from herbs and oils
- 300 BC the recognition of phenology as a science
- 300 BC the Chinese discovered biological control

Historical highlights of pest management

- 1100 - A.D. the Chinese had discovered the use of soap to control pests.
- 1600 - Nicotine from tobacco as well as arsenic were used to control pests.
- 1700s - plant resistance to insects was introduced
- 1800s - 1900s - Rapid development of insecticides (petroleum and coal tar distillates, nicotine, arsenic)
- Europe - Development of commercial sprayers late 1800s and early 1900s.

1939-1962 Insecticide Era

- ❖ Discovery - of insecticidal properties of DDT
Swiss Chemist, Dr. Paul Muller (Geigy Corp).
- ❖ Discovery - insecticidal properties of organophosphates
German Scientist, Dr. Gerhard Schrader (Bayer Ag)
- Identify the pest and finding most 'effective' chemical to control the pest
- Spraying on a calendar schedule without knowledge of pest phenology, density, or damage potential

Problems resulting from insecticide era

- Frequent cases of insecticide resistance, secondary pests outbreak, pest resurgence
- DDT and related compounds were discovered in milk and other foods as well as in food chains of predator birds and other wildlife
- Pressure from environmentalists
- The publication of a book “Silent Spring” by Rachel Carson

Emergence of Pest Management

- ❖ 1950 - 60s 'Integrated control' - combination of biological methods with chemical control strategies
- ❖ 1961 The term pest management was initially suggested by Australian entomologists, L.R. Clark and P.W. Geier who outlined the principles of pest management.
- Pest management differed from earlier concepts due to its holistic viewpoint.

Adoption of IPM programs through integration levels

❖ IPM program may evolved through a series of steps or integration levels

Level 1: Focuses on monitoring and managing a single species or species complex (blueberries - *Frankliniella* spp.)

Level 2: Determines how practices impact multiple pests (insects, pathogens and weeds) and focuses on complementary biologically based management options.

Level 3: Considers multi-strategies, multi-crop and multi-season are integrated into the decision making process

Common strategies for an IPM Program

- ✓ Surveying
- ✓ Pest identification
- ✓ Field monitoring
- ✓ Preventative methods
- ✓ Establishing thresholds
- ✓ Integrating strategies (biological and cultural control)

IPM Definitions

Pest - is an organism that interferes with the availability, quality, or value of a manage resource

Key Pest.

A perennial, severe pest that causes serious economic loses if left unmanaged

Secondary Pest.

A minor pest usually kept in check by natural enemies. A secondary pest can become a major pest if pesticides used against a key pest destroys the natural enemies of the minor pest

Occasional Pest.

Is a pest that causes in-frequent damage eg. once every 3 years

Occasional Pest

