SAMPLING AND DECISION MAKING

How Many Insects are Too Many?

INTRODUCTION

Proper pest identification

Potential for damage

Appropriate response for the situation

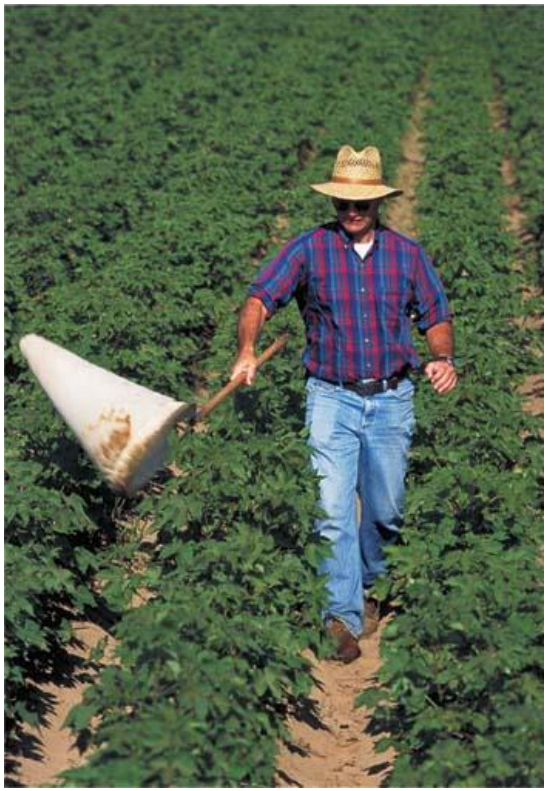
Outcomes include:

- Profitability versus non-profitability
- Proper environmental stewardship
- Lasting control vs. short term suppression
- **Success or failure!!**

INTRODUCTION

Assessment and Decision making

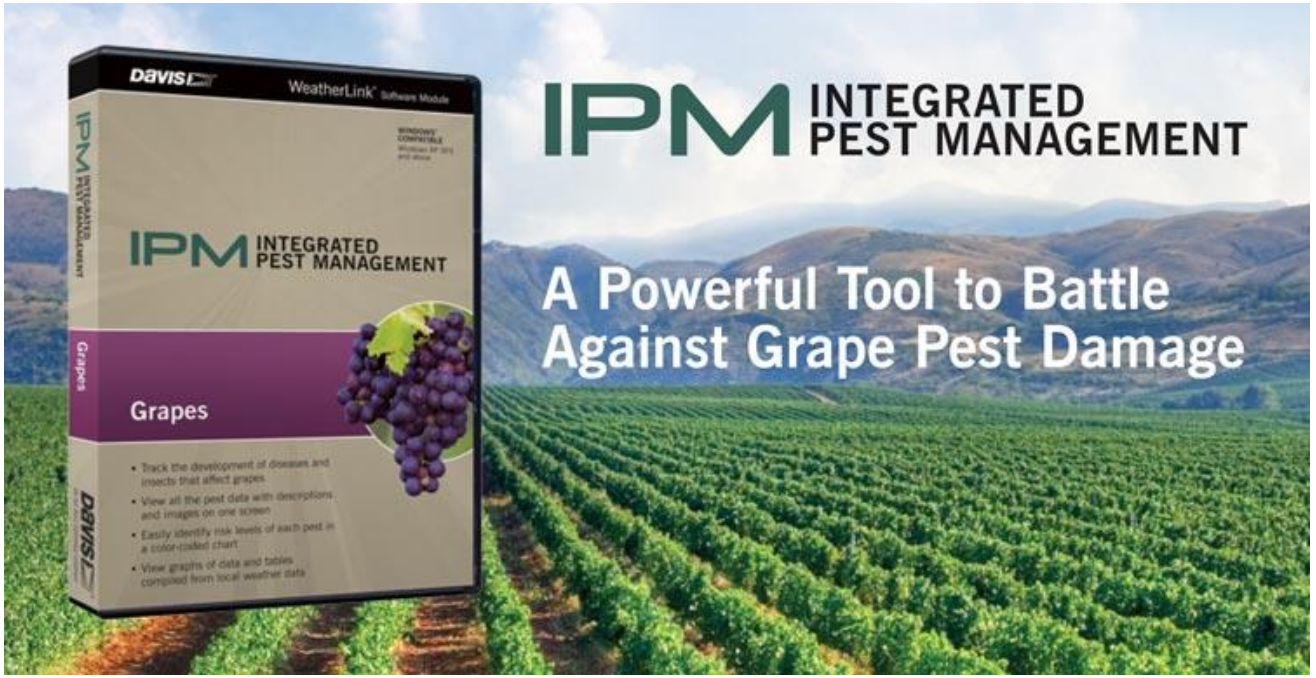
- Involves **gathering information**
- Estimates of pest population density
- Environmental conditions
- Host status
- Economic factors
- Costs of control



INTRODUCTION

Analysis of the information

- Focus on damage potential
- Use of guidelines from established recommendations or from cost/benefit analysis



PEST POPULATION SAMPLING

Numbers of insects at given place and time

Estimates must be made of pest population

Estimates are made by **sampling**

- Representative part of the total population

PEST POPULATION SAMPLING

Direct estimates of pest population

- Number of insects per given area

PEST POPULATION SAMPLING

Indirect estimates or population indices

- Insect effects or products (frass, webs, tents)

Survey or Monitoring – program of sampling to make estimates

PEST POPULATION SAMPLING

Scout – person doing the surveying

Sampling technique – method used to collect information for a single sample

- Number of swings of a sweep net

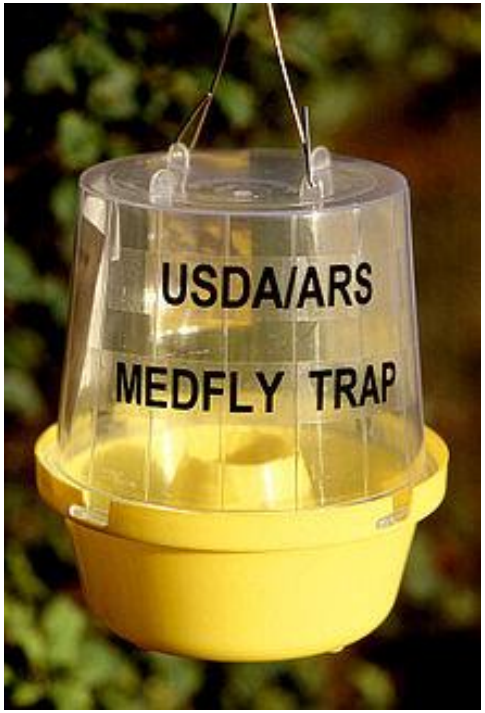
PEST POPULATION SAMPLING

Sampling program – method of employing the sampling technique

- Number of samples
- When to sample
- Spatial pattern of sampling

COMMON SAMPLING TECHNIQUES

- *In situ* counts
  - (viewing and counting)
- Knockdown
- Netting
- Trapping
- Extraction from soil
- Indirect techniques
  - (insects and their products)



SAMPLING PROGRAMS

- **Absolute method**
  - Actual insect population according to ground surface area
  - Used in research
  - Gives accurate measurement of pest population
  - Time consuming
  - Expensive

SAMPLING PROGRAMS

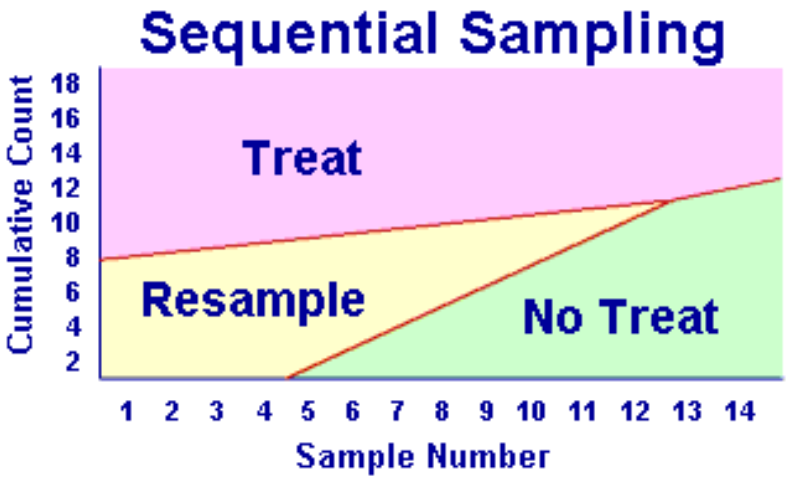
- **Relative method**
  - Measures numbers relative to sampling technique
  - Allow for comparisons of population density over time and from place to place
  - Used for determining population trends
  - Not as accurate as absolute methods
  - Less expensive
  - Less time consuming
  - Include population indices

SAMPLING PROGRAMS

- **Sampling Program Dimensions**
  - Insect stage to sample
  - Sample location
  - Number of samples to take
  - When to sample
  - Spatial pattern of sampling

SEQUENTIAL SAMPLING

- Procedure based on insect dispersion patterns and economic decision levels that uses variable numbers of samples
- Usually involves taking fewer samples than in a fixed sampling program
- Involves using a **decision table**
- May result in a 50% savings in sampling costs



SUMMARY

Pest population sampling

Common sampling techniques

Sampling programs

Sequential sampling