Field Techniques in IPM, PMA 4570/6228

Class Handouts

http://entnemdept.ufl.edu/liburd/fruitnvegipm/teaching.htm
Economic Decision Levels

Monitoring

Sampling

Decision making
Damage / Injury

- Damage is a measurable loss of production in terms of yield, quality or aesthetics as a result of injury.

- Injury- refers to pest and its activities on the host-feeding etc.
• Direct injury refers to the injury on the marketable part of the plant

• Indirect injury refers to the injury on the non-marketable part of the plant
Economic Threshold

- ET – Most widely used term in pest management
  - Commonly referred to as ‘action threshold’

- The concepts of economic threshold (ET) and economic injury level (EIL) were suggested in 1959 by V. M. Stern, R. F. Smith, van den Bosch and K.S. Hagen

- 1934 W. D. Pierce – Questioned whether or not all insect attack resulted in assessable damage. And at what point is control warranted?

- These concepts were developed to encourage better use of pesticides for pest control.
Economic threshold refers to the density of pests (insects) at which control measures must be applied to prevent crop loss or damage from going beyond acceptable levels.

The economic threshold level is usually set below the economic injury level.
Decision making process….

- How much loss is this pest causing ($)?
- What is the cost of controlling this pest?
Relationship between number of thrips and fruit formed

No. of thrips per flower

% of fruit formed

Mean  S.E.M.
Factors Affecting Economic Threshold Levels

- Pest Status - Key pest versus secondary pests
- Type and availability of control measures
  - Augmentative release of a natural enemy may have a lower ET than an insecticide
- Crop type and susceptibility
- Environmental conditions
Injury Levels

- **Economic injury level** - is the lowest number of pests that will cause economic damage (usually refers to single pest species inflicting a unique type of injury)

- **Aesthetic injury level** - term used in ornamentals and turf and it refers to the pest population level that the general public is willing to tolerate

- **Tolerable Injury level** - the pest density or damage level where the cost of pest control is less than the cost of damage
Special Cases Omitting the use of ET

Weeds – Treatment thresholds for weeds are generally based on the conduciveness of the field as well as environmental conditions for the development of certain weed species.

Pathogens – Treatment is usually applied before unacceptable levels are reached because pathogens spread quickly if conditions are conducive.