Management and Control of the Lacanobia Fruitworm

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Lacanobia/noctuid management

- Lacanobia larvae
- Bertha Armyworm larvae
- Spotted cutworm larvae
- Arctiid larvae

Working Lacanobia thresholds ???

- 75 moths/wk
- 150 moths/wk

5-10% Infested shoots
Management Summary

- **Two generations per year**
  - Adults begin flying in late April through June and again in early July through September

- **Larvae develop through 6 instars**
  - The characteristic herringbone pattern appears after molt to 4th instar
  - Larvae present from early June through July and mid-August through Sept.

- **Early larval stages and their feeding are difficult to distinguish from many other lepidopteran species**
  - Similarity to other pests can confound management decisions
  - An understanding of the complex of lepidopteran infesting orchards is critical to implementing an integrated management program

- **Lorsban, Thiodan and Success continue to provide the best control of the lacanobia fruitworm**
Larval sampling

Sampling done after hatch with standard beating tray

–Beating tray sampling important to ensure species identification

–Foliage feeding should be noted while using beating trays, % infested shoots is important measure of density

–It is important to record damage consistent with lacanobia phenology

Foliage feeding consistent with cutworm/fruitworm type damage was noted at every orchard sampled during 1999

–Larval samples indicated that many lepidopteran were feeding in orchards

–Not all caterpillars cause significant damage and are in trees for only a short time

It appears orchards can tolerate from 5-10% infested shoots before larval populations and significant fruit injury will be detected
Adult monitoring

- Adults can be monitored using a general purpose bucket-style trap baited with a sex pheromone
  - Traps should be placed near the time of codling moth biofix
  - Lures should last for an entire generation

- Male lacanobia were trapped in varying amounts at every orchard sampled in 1999

- Larval densities were not well correlated with trap catch

- There does appear to be a threshold level at which concern for larval presence should be noted
  - Larval infestations resulting in 10% infested shoots were not detected in orchards with less than 85 moths/week as a peak catch in the first generation and 150 moths/week during the second generation
**Presence of various caterpillars**

**Noctuids** - feeding damage very similar among species
- Bertha armyworm—probably most easily confused with lacanobia
  - Appearance and phenology closely associated between the two species
  - Difference in pattern on larvae not apparent until the 4th instar
- Spotted cutworm—overwinters as larva, therefore phenology slightly different
  - Feeding most often problematic early in spring as bud feeding

**Arctiids (woolly bear)**
- Appearance is significantly different (very hairy) but feeding by neonates can be confusing

**Leafrollers**
- High infestations of either LR or lacanobia can result in tattered leaves, therefore making it difficult to detect the other species

**Geometrids (loopers)**
- Appearance and behavior very different, however neonate feeding can be confusing
Lacanobia, bertha armyworm and spotted cutworm (5th instar larvae)

Note difference in pattern on last segments
Various other lepidopteran present at sampling

Arctiids (woolly bear)

Geometrids (loopers)

Several leafrollers

Other noctuids
Shoot infestation as a means to predict larval densities and fruit injury

No. larvae/50 beating trays

% Infested shoots

First generation

Threshold

% Fruit injury

% Infested shoots

Second generation

Threshold
Pheromone trap catch as a means to predict larval densities

% Infested shoots

Threshold

% Infested shoots

Threshold

Maximum trap catch/week

Maximum trap catch/week
Success and Lorsban vs. Lacanobia

- Success applied as 2 applications of 6 fl oz/acre at hatch, repeat at 10 day
- Lorsban applied as 1 application of 3 lb/acre as larvae are turning brown
- Treatments applied to 1/3 acre plots replicated 3 times
- Application by airblast sprayer at 100 gal/acre (4X concentrate)
- Samples taken approximately 1 and 2 months after treatment

![Graph showing comparison of fruit injury and shoot infestation between Success, Lorsban, and Untreated treatments.](image-url)
Surround and Pyrellin vs. L. cananobia

- Surround applied at 50 lbs/acre as 3 applications per oviposition or hatch timing and 6 applications across the oviposition and hatch period
- Pyrellin applied at 1.5 pt/acre as 2 applications at hatch, repeat at 10 day
- Treatments applied to 1/3 acre plots replicated 3 times
- Application by airblast sprayer at 100 gal/acre (4X concentrate)
- Samples taken approximately 1 and 2 months after treatment
**Bioassay/ insecticide screening**

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Corr. % mortality (rates shown as multiple of the standard field rate (1X))

Standard leaf-dip bioassay technique. Evaluated mortality at 48hrs with all insecticides except Confirm 2 F (7 days)

Further tests planned for evaluating Bt strains, Intrepid and Cryolite