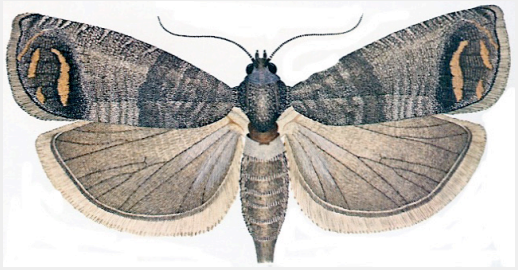
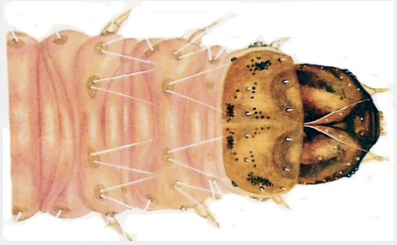
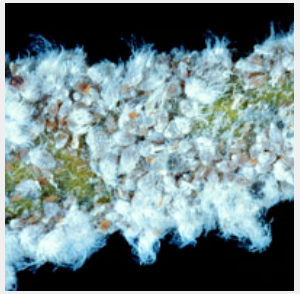
# Tree Fruit Insect Management News



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**January 2010**

# Tree Fruit Insect Management

- Insecticide product news
- Recent pest issues
  - Dogwood borer
  - Woolly apple aphid
- Results of codling moth trial

# New insecticide products

- New formulations
- Label expansions
  - New crops
  - New target pests
- Modifications
- Substitutions

# New or improved formulations

| *a.i.* | *New product* | *Old product* |
|---|---|---|
| **lambda-cyhalothrin** | **Warrior II (2.1CS)**<br>Rates now half of old rates | **Warrior (1CS)** |
| **cyfluthrin** | | **Baythroid 2EC** |
| **beta-cyfluthrin** | **Baythroid XL 1EC**<br>Rates the same as old rates | |
| **buprofezin** | **Centaur 70WDG** | **Centaur 70WP** |

# Registration expanded to new crops

| *Product* | *New crops* | *Target* |
|---|---|---|
| Portal, FujiMite | melon, tomato, pepper | mite, w'fly |
| Voliam Xpress | pome & stone, potato | multi |
| Centaur | all stone fruit | scales |

# Registration expanded to additional pests

| *Product* | *Pest* |
| --- | --- |
| Belt | Oriental fruit moth (apple) |

# Registration modifications

- Lorsban 4E
  - Apple, add post-bloom trunk drench
- Guthion: limits per year
  - 6 lb/A allowed in 2008 & 2009 on apple
  - 4 lb/A allowed in 2010 on apple
  - 3 lb/A allowed in 2011 & 2012 on apple

# Products discontinued but replaced by similar products

| *Discontinued* | *Replacement* |
|---|---|
| SpinTor | Delegate |
| Confirm | Intrepid |
| Endosulfan 50WP | Thionex 50WP |
| Capture | Brigade & generic bifenthrin |
| Decis | Delta Gold |
| Savey | Onager |

# Recent pest management issues

- Dogwood borer on apple
- Woolly apple aphid

# Borers in apple trees

- Problem in some orchards, 2009
- Possible species
  - Long-known species:
    - Flatheaded appletree borer (a beetle)
    - Roundheaded appletree borer (beetle)
    - Shothole borer (a beetle)
  - Relatively new species in apple:
    - Dogwood borer (a moth) **
    - Apple bark borer (a moth)
    - American plum borer (a moth)

# Damage by dogwood borer in apple

- Damage usually in burr-knots
- What are burr-knots?
  - Partly-developed root initials
  - In clusters at or below the graft union
  - On exposed part of M.9, M.26 & others
  - Enhanced by low light conditions

# Damage by dogwood borer

- **Larva entry into trunk:**
  - Usually in burr-knots or at graft union
  - Rarely attack smooth healthy bark
- **Feeding:**
  - Start by feeding on burr-knot tissue
  - Can move to feed on inner bark
- **Result:**
  - Slow decline after few years infested
  - Reduce tree vigor and yield
  - If girdled, tree can be killed

# Symptoms of dogwood borer

- Reddish frass (excrement)
  - On surface of burr-knot
  - Pushed out of feeding tunnels
  - Held together by silk
  - Is visible sign of active infestation

- A feeding tunnel may be as much as 3/4 inch deep

# Dogwood borer in apple: Control by insecticide

- How to do?
- What to use?
- When?

# Dogwood borer in apple: How to control by insecticide

- Trunk drench
- High-volume handgun sprays
- Thoroughly wet trunk below graft union
- Apply to point of runoff

# Dogwood borer in apple: Control by chlorpyrifos

- Lorsban 75WG
  - 2 pounds per 100 gal.
- Lorsban 4E (new label)
  - 1.5 qt per 100 gal.
- Must be trunk drench by handgun
- Limited to lower 4 ft of trunk
- Do not allow to contact fruit or foliage
- Maximum of 1 application
- Pre-harvest interval: 28 days

# Dogwood borer in apple: Control timing

- Most accurate if timed after moth flight known from trap
- Apply at peak flight (early July)
- Need to be familiar with i.d. & life cycle of this pest

# I.d. of dogwood borer

- **Larva**
  - Body: white - cream - light pink
  - Head: brown
  - Length: about 1/2 inch, full-grown
  - Crochets on prolegs with 2 lines hooks
- **Adult**
  - Resemble small wasps, but are moths
  - Wings clear, with black tips & edges
  - Body 3/8 inch long, wingspan ¾ inch
  - Females larger than males
  - Abdomen black with 2 yellow bands
    - Narrow bands on males
    - Wide bands on females
  - Legs yellow



# Life cycle of dogwood borer

- **Adults:**
  - Emerge over 3 months, June to August
  - Mate & lay eggs within few days of emergence
- **Eggs:**
  - Laid on surface of burr-knot or rough bark
  - Hatch in 8 to 9 days
- **Larvae:**
  - Feed on cambium
  - Overwinter under bark
  - Emerge early in spring to continue feeding
  - Spend 1-2 years feeding

- **Pupae:**
  - Pupate under bark in May/June, for 25 days
  - Pupal cases protrude from tree

# Monitoring dogwood borer

- **Scouting**
  - Check under tree guards in spring
  - Look in above-ground, exposed portion of rootstock
  - Look for reddish-brown frass
  - Use knife to carefully dig away bark & frass to find borers

# Monitoring dogwood borer

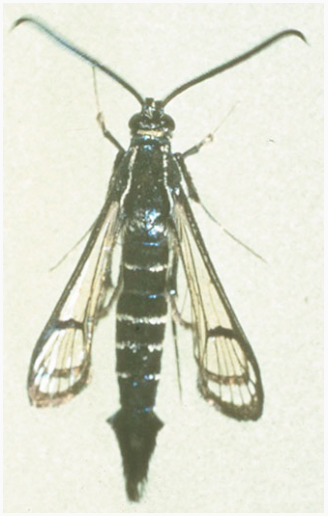
- **Trapping**
  - Use pheromone traps to estimate timing of peak flight
  - Place 4 feet above ground for optimal catch
  - Set up at petal-fall (early May)
  - Check weekly until late August
  - In central Ohio: 1st catch usually in mid or late May, peak in early July

# Monitoring dogwood borer

- **Trapping**
  - **Be sure to distinguish target moth from other moths like lilac borer**

**Dogwood borer: note the clear wings & <u>small</u> size (body 3/8”)**

**Lilac borer: note the dark wings**



**Peachtree borer: larger (body 5/8”)**

# Clearwing borers

Dogwood borer

Lesser peachtree borer

Peachtree borer

# Woolly apple aphid

- Infest limbs, wounds, roots
- Less susceptible: M111 or M106
- More susceptible: B9, M9, M26 and the P series

# Woolly apple aphid: management

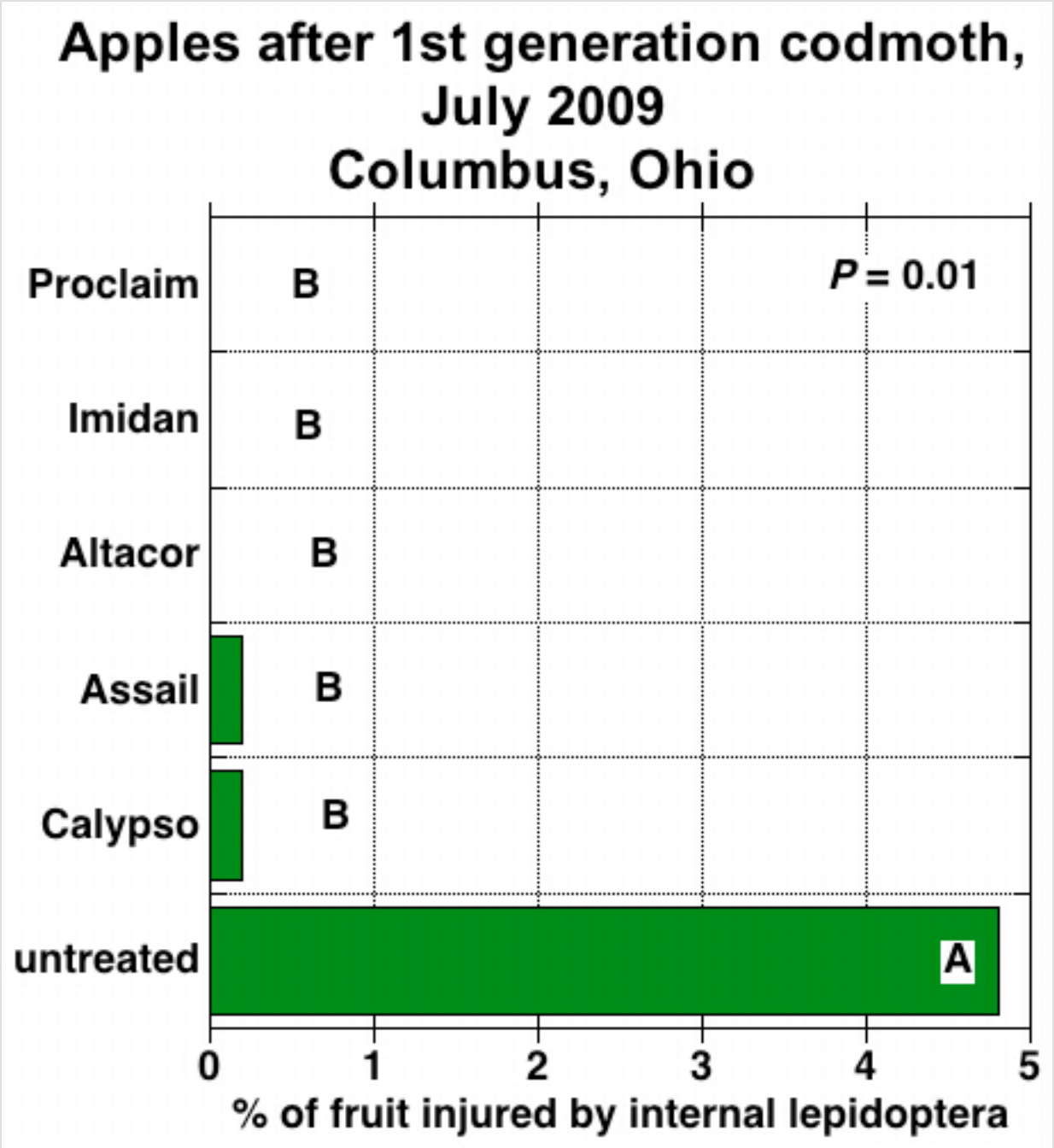
- Preyed on by hover fly larvae

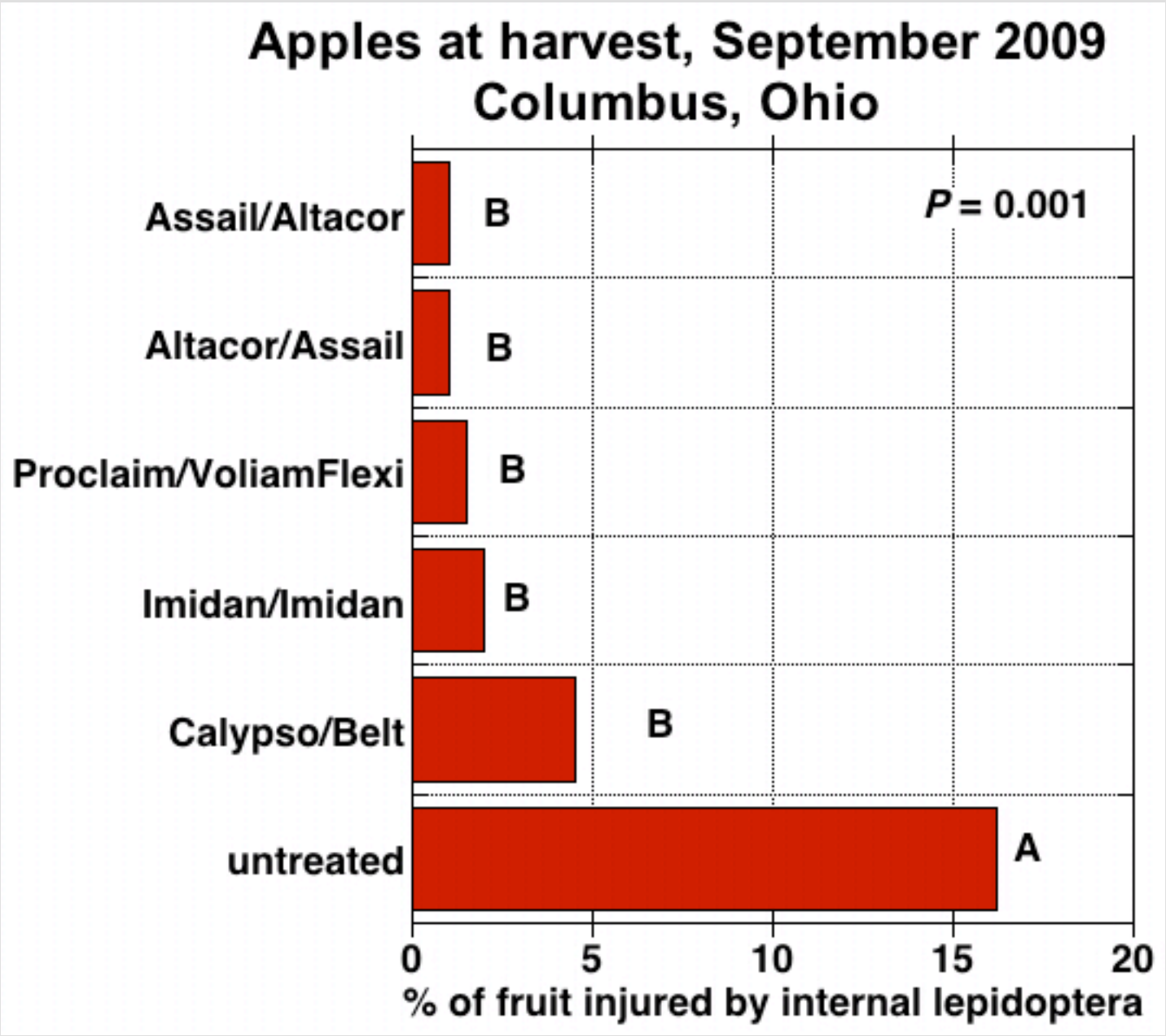
# Woolly apple aphid: management

- Preyed on by hover fly larvae
- Movento is new option
  - Systemic
  - Active on stem & root populations
  - Best at petal-fall
- Other options: contact materials
  - Diazinon 50WP, Diazinon AG600 WBC
  - Thionex
- Use high volume water

# Codling moth on apples: field trial 2009

| | *1st generation* | *2nd generation* |
|---|---|---|
| 1 | Assail | Altacor |
| 2 | Altacor | Assail |
| 3 | Calypso | Belt |
| 4 | Proclaim | Voliam Flexi |
| 5 | Imidan | Imidan |
| 6 | untreated | untreated |


Apples after 1st generation codmoth,
July 2009
Columbus, Ohio
Proclaim
Imidan
Altacor
Assail
Calypso
untreated
B
B
B
B
B
A
P = 0.01
0
1
2
3
4
5
% of fruit injured by internal lepidoptera


Apples at harvest, September 2009
Columbus, Ohio
P = 0.001
Assail/Altacor
B
Altacor/Assail
B
Proclaim/VoliamFlexi
B
Imidan/Imidan
B
Calypso/Belt
B
untreated
A
0
5
10
15
20
% of fruit injured by internal lepidoptera

# The end