

# FEED-THROUGH INSECTICIDE TO REDUCE PESTICIDE USE IN DAIRY OPERATIONS

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UW researchers and WSU Extension Integrated Pest Management (IPM) specialists evaluated the effectiveness of a diflubenzuron larvicide feed-through product to reduce fly populations when added to a dairy's existing IPM fly management program. This can reduce the reliance on pyrethroid insecticides. Less pyrethroid use can slow the development of the flies' resistance to pyrethroids and reduce dairy worker exposure to the insecticides.

## STUDY METHODS

Four dairies in WA state participated in this study to evaluate the effectiveness of a feed-through insecticide over the fly season. Methods included

- Monitoring weekly fly population using fly traps.
- Surveying (weekly) fly control methods with dairy operator.
- Measuring insecticide decay to assess potential worker exposure to residues.

### Feed-through insecticides:

- Kill fly larvae (in manure)
- Are pre-mixed in feed
- Active ingredient: diflubenzuron
- No worker exposure to insecticides

### Pour-on insecticides:

- Kill adult flies (direct contact)
- Applied directly on cows' back
- Active ingredient: commonly pyrethroids including permethrin
- Potential worker exposure to insecticides

## STUDY RESULTS

1. Reduction of pyrethroid use
  - Pyrethroid applications were reduced to a single application vs. every 3 weeks in previous fly seasons (one dairy).
  - Time between applications increased from every 30 days to ~ 40 days at other dairies.
2. Seasonal fly populations
  - Lower fly populations when using feed-through combined with fresh bedding in calf hutches.
  - Sufficient ventilation and frequent manure removal throughout the day helped reduce fly populations.
  - An increase in fly populations observed at the beginning of September.
3. Permethrin residues remained on inert metal surfaces after application. The half-life of permethrin on metal surfaces was 7 days and these residues were present 21 days post application.



## WHY REDUCE PYRETHROID INSECTICIDE USE?

- Slow the development of fly resistance to pyrethroid insecticides, by avoiding increased use and/or use of higher-risk insecticides.
- Reduce health hazards for humans, by lowering the chance for insecticide residues on work clothes and in vehicles, which can lead to family exposure.
- Decrease harm to the environment, by avoiding degradation in groundwater quality and disruption of beneficial insects and spiders.

## HOW CAN IPM BENEFIT MY DAIRY?

- Improve seasonal fly control and reduce irritation to cows.
- Improve pest management and reduce pyrethroid insecticide usage.
- Provide reliable fly control while minimizing demand on employee time.

Products used in this study were

1. Clari-Fly® and Elim-A-Fly®
2. Brute® and Exit Gold Synergized®

This is not an endorsement of the products.

## RECOMMENDATIONS

- Consider adding feed-through to your existing IPM fly management program.
- Consistent use of the feed-through is needed for the best fly control.
- Rotate different pyrethroid active ingredients to help combat fly resistance.
- Avoid direct contact with surfaces in areas where insecticides are applied.
- Read all insecticide labels and communicate label information and safety precautions to all dairy workers in their preferred language.



Permethrin decay: Aluminum dots were randomly removed after a specified time post application to determine the permethrin decay on metal surfaces.

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