

# TECHNICAL BULLETIN

## USE CYZMIC® CS TO CONTROL DARKLING BEETLES IN POULTRY BARNS

### ECONOMIC, PERFORMANCE & BIOSECURITY IMPACT

Darkling beetles (also known as lesser mealworms or litter beetles) are the most important insect pest in broiler production. Left uncontrolled, these beetles can cause significant damage and economic loss:

- Destroy insulation and structural wood in broiler houses
- As much as 67% increase in energy costs
- Consume poultry feed
- Carry and transmit disease organisms and parasites
- *Salmonella*
- *Campylobacter*
- Newcastle disease virus
- 26 pathogenic types of *E. coli*
- In dry litter, larvae burrow into young chicks for water, & can kill younger birds

With today's current production practices, insecticide application is one of the more practical and effective ways to control darkling beetles.

### WEAPON OF CHOICE: CYZMIC CS CONTROLLED RELEASE INSECTICIDE

**ACTIVE INGREDIENT: LAMBDA-CYHALOTHRIN 9.7% ; IRAC GROUP 3**

CYZMIC CS product is a liquid microencapsulated concentrate containing 9.7% of lambda-cyhalothrin. It is a broad

spectrum insecticide, labeled for several pests commonly found in livestock and poultry housing.

### APPLICATION FOR OTHER INSECT PESTS

CYZMIC CS controls several pests commonly found in and around livestock and poultry housing.

- Darkling (litter) beetles
- Flies
- Spiders
- Hide beetles
- Carrion beetles
- Cockroaches
- Crickets
- Wasps

### INTERIOR APPLICATION

For interior applications in and around the livestock and poultry housing structures, apply as a general surface (including directed sprays) and/or crack and crevice treatment. Normal cleaning of the structure must also be done along with applications of CYZMIC CS to effectively control labeled crawling and flying insect pests.

With the exception of cattle and calves that may be present, only apply CYZMIC CS to livestock barns or housing structures when animals are not present.

Apply to floors, vertical, and overhead surfaces where crawling or flying insect pests are or may be present. Feeders, waterers, and feed carts should be covered before application to prevent contamination. Do not apply to milk rooms or feed rooms. Pay attention to animal areas where insect pests hide or congregate.

### EXTERIOR APPLICATION

For exterior applications apply a band of insecticide around building foundations and around windows, doors, service line entrances, eaves, vents, and other areas to reduce the potential for entry.

Before application, remove debris and leaf litter from next to the foundation, cut back vegetation and branches that touch the foundation, and move or rake back rocks, deep mulch, or other potential pest harborage next to the foundation.

Apply the band up to 10 ft. wide around the structure (or according to state regulations governing commercial pest control) and upwards along the foundation to 3 ft. and around windows, doors, and roof overhangs.

### RESISTANCE & INSECTICIDE ROTATION

Darkling beetles are becoming resistant to a number of different insecticides. A practical and effective way to manage insecticide resistance is to avoid using insecticides with the same mode of action (MoA) over and over again. Instead, alternate or "rotate" insecticides every 6 months. For example, if you've been using an organophosphate like Pyrofos CS, rotate to a pyrethroid such as CYZMIC CS for the next 6 months, then rotate to another MoA class for the next 6 months, and so on.



Cyzmic® CS ▶

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## CYZMIC® CS APPLICATION OPTIONS

### DARKLING BEETLE CONTROL APPLICATION OPTIONS

To control darkling beetles in broiler houses, apply **CYZMIC CS** to floor area as well as the lower portions of walls and any posts. Application should also be made into cracks and crevices around insulation. Reapply after each growout or sanitization procedure. Use **CYZMIC CS** at a rate of 0.8 fluid ounce (24 mL) /per gallon of water/1,000 square of area to be treated.

Indoor control can be enhanced by making perimeter treatments around the outside of building foundations to prevent immigrating adult beetles. Apply in a uniform band 1 - 3 ft. up and 2 - 6 ft. out from foundation. Maintaining a year-round treatment program will prevent background populations from reaching problem levels.

### WHOLE HOUSE TREATMENT

This method treats the entire floor area of the broiler house and lower portions of the walls.

#### Whole house treatment area calculations (example)

##### HOUSE DIMENSIONS

- Length = 500 ft.
- Width = 40 ft.
- **Floor Area** = 500 ft. X 40 ft. = **20,000 ft.<sup>2</sup>**
- Length of walls = (2 X 500 ft.) + (2 x 40 ft.) = 1,080 ft.
- Height to treat on walls = 1 ft.
- **Wall Area** to treat = 1,080 ft. X 1 ft. high = **1,080 ft.<sup>2</sup>**
- **Total Area to treat** = **20,000 ft.<sup>2</sup> + 1,080 ft.<sup>2</sup> = 21,080 ft.<sup>2</sup>**
- **CYZMIC CS Needed:** 21,080 ft.<sup>2</sup> X 0.8 fluid ounces (24mL)/1,000 ft.<sup>2</sup> = **17 fluid ounces (506 mL)**



■ Bottom 1 -2 feet of the walls      ■ House floor



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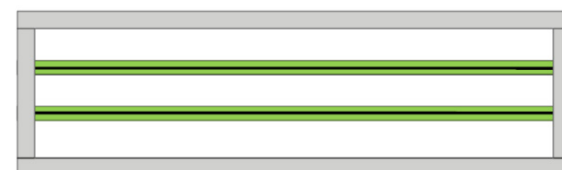
### BAND TREATMENT

Band treatments apply insecticides to areas where darkling beetles tend to concentrate: along the walls and under the feed lines.

#### Band treatment area calculations (example)

##### HOUSE DIMENSIONS

- Length = 500 ft.
- Width = 40 ft.
- "Band" width = 3 ft.
- Number of Feed Lines = 2
- Length of walls = (2 X 500 ft.) + (2 x 40 ft.) = 1,080 ft.
- Area to treat along walls = 1,080 ft. X 3 ft. = 3,240 ft.<sup>2</sup>
- Area to treat under feed lines = 500 ft. X 3 ft. X 2 = 3,000 ft.<sup>2</sup>
- **Total Area to treat** = **3,240 ft.<sup>2</sup> + 3,000 ft.<sup>2</sup> = 6,240 ft.<sup>2</sup>**
- **CYZMIC CS Needed:** 6,240 ft.<sup>2</sup> X 0.8 fluid ounces (24 mL)/1,000 ft.<sup>2</sup> = **5 fluid ounces (150 mL)**



■ • 3 foot wide "bands" of litter at the base of all the walls

■ 3 foot wide "bands" of litter under all feed lines



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Applications should be made between flocks, after the litter in each house has been prepared for placement of the next flock (i.e., AFTER cake is removed, litter raked, and any new material added).