

TECHNICAL BULLETIN

USE PERMETHRIN™ SFR 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: PERMETHRIN SFR TERMITICIDE/INSECTICIDE

ACTIVE INGREDIENT: PERMETHRIN 36.8%

Permethrin SFR product is an emulsifiable concentrate (EC) containing 3.2 lbs of permethrin per gallon. This product is a broad spectrum insecticide, labeled for

the control of over 60 pests, including:

- Ants
- Bees
- Cockroaches
- Crickets
- Darkling Beetles
- Wasps
- Fleas
- Flies
- Millipedes
- Mole crickets
- Mosquitoes
- Scorpions
- Silverfish
- Stable flies
- Ticks

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 Pyrifos CS, rotate to a pyrethroid such as Permethrin SFR for the next 6 months, then rotate to another MoA class for the next 6 months, and so on.

OTHER INSECT PESTS

Permethrin SFR may be used indoors and outdoors to

control over 75 other pests, including those listed above. Use sites include Animal housing, Calf hutches, Calving pens and parlors, Empty chicken houses, Dairy areas, Hog barns, Horse barns and Milk rooms.

APPLICATION

Permethrin SFR may be used on any surface which will not be damaged or stained by water. Heavy applications may leave a visible deposit on some surfaces. This deposit can be removed with a damp cloth or sponge. Thoroughly clean spray equipment before using this product. Shake the Permethrin SFR concentrate well before diluting. When diluting, first add approximately 1/2 of the water to the spray tank and then add the proper amount of Permethrin SFR. When emptying the bottles, triple rinse with water, shake well and add the rinsate to the spray tank. Add the rest of the water and agitate the sprayer thoroughly. Agitate sprayer occasionally during use to ensure even mixture. Shake or reagituate sprayer if spraying is interrupted or if dilution is left in sprayer overnight.

SPRAY DILUTION CHART

Permethrin SFR Concentrate

AMOUNT OF FINISHED SPRAY	.05% SPRAY	1.0% SPRAY
1 GALLON	2 2/3 FLUID OUNCES	5 1/3 FLUID OUNCES

Use the higher rate for clean-outs and high insect infestations.



Livestock/Farm



Animals/Pets



Lawn & Garden



Residential

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281-892-2500

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PERMETHRIN SFR APPLICATION OPTIONS

DARKLING BEETLE CONTROL APPLICATION OPTIONS

Use **Permethrin SFR** at a rate of 4 fluid ounces (120 mL) in 12 ½ gallons of water, and apply this diluted spray at a rate of 1 gallon/750 squarefeet of area to be treated. Apply diluted Permethrin SFR with low pressure spray equipment (tank or trigger sprayers). Two different application methods are commonly used for broiler houses.

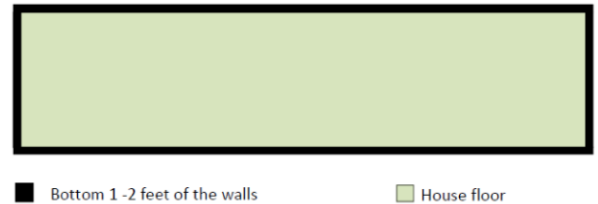
WHOLE HOUSE TREATMENT

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.²**
- 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.²**
- **Total Area to treat** = 20,000 ft.² + 1,080 ft.² = **21,080 ft.²**
- **Permethrin SFR Needed:** 21,080 ft.² X 5 1/3 fluid ounces/1,000 ft.² = **112 fluid ounces (3,312 mL)**



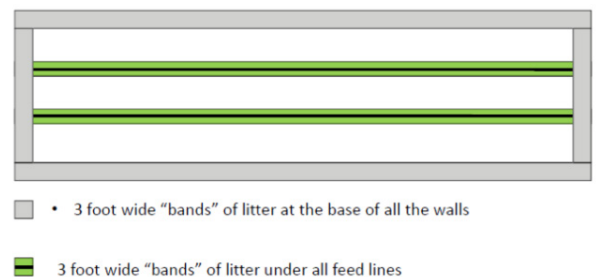
BAND TREATMENT

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.²
- Area to treat under feed lines = 500 ft. X 3 ft. X 2 = 3,000 ft.²
- **Total Area to treat** = 3,240 ft.² + 3,000 ft.² = **6,240 ft.²**
- **Permethrin SFR Needed:** 6,240 ft.² X 5 1/3 fluid ounces/1,000 ft.² = **33 fluid ounces (984 mL)**



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).



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