

PRODUCT RESOURCE

USE PYROFOS 20 TO CONTROL DARKLING BEETLES IN POULTRY BARN

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: PYROFOS 20 CONTROLLED RELEASE PREMISE INSECTICIDE¹

ACTIVE INGREDIENT: CHLORPYRIFOS 20%

Pyrofos 20 is a liquid microencapsulated concentrate containing the active ingredient chlorpyrifos. It is a broad spectrum insecticide, labeled for the control of over 40 pests, including several associated with poultry production:

- Darkling beetles
- Flies
- Gnats
- Mealworms
- Spiders (except black widow & brown reclus)

DARKLING BEETLE CONTROL APPLICATION OPTIONS

Use **Pyrofos 20** at a rate of 5 fluid ounces (150 mL) /1,000 square of broiler house litter to be treated. Mix **Pyrofos 20** with ½ gallon water/1,000 square of litter to be treated. Apply diluted **Pyrofos 20** with low pressure spray equipment (tank or trigger sprayers). Two different application methods are commonly used for broiler houses.

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 a pyrethroid like Permethrin CS, rotate to an organophosphate such as **Pyrofos 20** for the next 6 months, then rotate to another MoA class for the next 6 months, and so on.

OTHER INSECT PESTS

Pyrofos 20 may be used to control other insects listed above in a variety of livestock housing and holding areas, such as milk rooms, calf hutches, calving pens, parlors and hog barns.

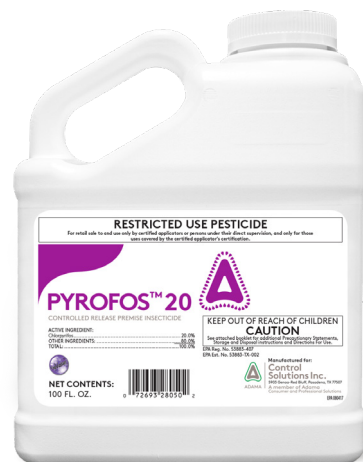
For fly control, **Pyrofos 20** may be applied in compressed air backpack and power spray equipment. Apply at a rate of 5–8 fluid ounces (150–240 mL) per gallon of spray per 1,000 square feet.

Flies must be directly contacted by spray droplets for control. Flies will be killed on contact. Spray where flies are seen and congregate, such as screen doors, window frames, light fixtures, ceilings and upper corners, inside and outside dumpsters, and other garbage containers and garbage storage bins or areas.

For control of other pests and to help prevent infestations of buildings, treat a band of soil 6–10 ft wide around and adjacent to the building. Also treat the building foundation and sides where pests are active and may enter. Treat other insect entry points such as doors, windows, under siding and eaves of the structure.

RESTRICTIONS

- Do not apply to lactating or food animals.
- Do not contaminate milk, food, or drinking water.
- Remove all animals prior to making application to housing.
- Do not apply or allow insecticide to drift into animals.
- Do not allow animals to enter treated areas until surfaces are dry.



¹ Pyrofos 20 is a RESTRICTED USE PESTICIDE. For retail sale to and use by certified applicators or persons under their direct supervision, and only for those uses covered by the certified applicator's certification.



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PYROFOS 20 APPLICATION OPTIONS

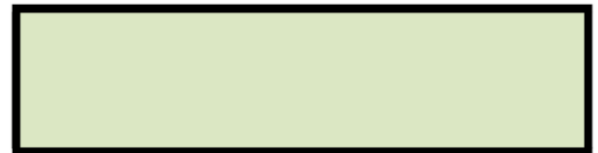
WHOLE HOUSE TREATMENT

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**
- **Pyrofos 20 Needed:** 21,080 ft.2 X 5 fluid ounces/1,000 ft.2 = **105 fluid ounces (3,117 mL)**



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

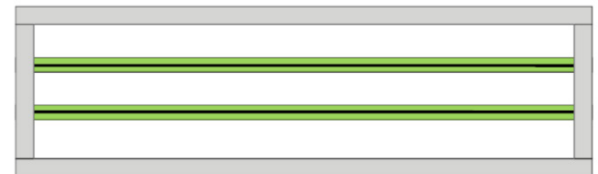
BAND TREATMENT

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**
- **Pyrofos 20 Needed:** 6,240 ft.2 X 5 fluid ounces/1,000 ft.2 = **31 fluid ounces (917 mL)**



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

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

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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