

# TECHNICAL BULLETIN



## USE DOMINION® 4L 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: DOMINION® 4L FLOWABLE INSECTICIDE ACTIVE INGREDIENT: IMIDACLOPRID 42.3%

DOMINION® 4L is a liquid flowable concentrate containing 4 lbs of imidacloprid per gallon. This product may be used indoors as a spot, crack and

crevice, or overall surface spray to control darkling beetles and hide beetles on floors, walls, and support beams of poultry or turkey housing structures. Apply between flocks after de-caking and sanitation procedures have been completed.

### MIXING & APPLICATION RATES

Calculate the surface area to be sprayed. Apply 3 fl. oz. of DOMINION 4L per 1,000 square feet of surface area in ½ to 2 gallons of final dilution per 1000 square feet. To prepare the dilution, partly fill the spray tank with ½ the water to be used, then add the appropriate amount of DOMINION 4L, mix, then add the rest of the water while agitating or mixing. Maintain agitation while spraying. Prepare a fresh mixture for each application. 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).

### RESISTANCE & INSECTICIDE ROTATION

Like other insects, darkling beetles may become

resistant to 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 Dominion 4L for several flocks, rotate or switch to an organophosphate like Pyrofos CS for the next 6 months, then rotate to another MoA such as a pyrethroid like Bifen I/T for the next 6 months, and so on.



Livestock/Farm



Animals/Pets



Lawn & Garden



Residential

ControlSolutionsInc.com  
281-892-2500

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## DOMINION® 4L APPLICATION OPTIONS

### WHOLE HOUSE TREATMENT

If beetle infestations are very high, it may be necessary to treat the entire facility. Apply 3 fl oz of Dominion 4L per 1,000 square feet in ½ -2 gallons of water per 1,000 square feet. Apply as a broadcast spray to entire floor area and to the lower 1-2 feet of all 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>**
- **Dominion 4L Needed:** 21,080 ft.<sup>2</sup> X 3 fluid ounces/1,000 ft.<sup>2</sup> = **63 fluid ounces (1,863 mL)**



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

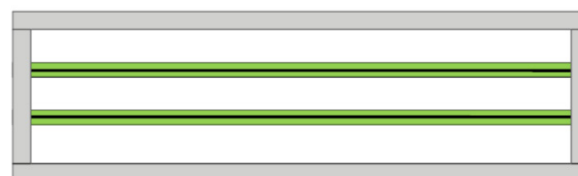
### BAND TREATMENT

Apply DOMINION 4L in a 3 foot wide band along all the walls and 1 foot up onto the walls, and to 3 foot wide bands directly beneath all feed lines. These areas are where the vast majority of the adult and larval beetles will be when the birds are in the house, and therefore will have an increased likelihood of coming in contact with the insecticide. Measure these areas to determine the correct amount of DOMINION 4L needed for the application.

#### 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>**
- Wall area to treat = 1,080 ft. X 1 ft. high = **1,080 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> + 1,080 ft.<sup>2</sup> + 3,000 ft.<sup>2</sup> = **7,320 ft.<sup>2</sup>**
- **Dominion 4L Needed:** 7,320 ft.<sup>2</sup> X 3 fluid ounces/1,000 ft.<sup>2</sup> = **22 fluid ounces (650 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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