



DEBUG TURBO

APPLICATION RECOMMENDATION FOR CRANE FLY CONTROL ON TURF GRASS

- General:** DEBUG TURBO is a neem based (containing about 67% Neem extract with Azadirachtin, and 20% Synergist) botanical insecticide, anti-feedant, repellent, and growth regulator. It is also recommended for use as a preventative even if there is no insect problem.
- For the Control of:** EUROPEAN CRANE FLY (*Tipula paludosa meigen*) , COMMON CRANE FLY (*Tipula Oleracea L*) [DIPTERA- Tipulidae]
- Spraying Equipment:** Since DEBUG TURBO is a contact insecticide, total coverage of the turf is very important to get good results. It would be necessary to irrigate the turf to push the DEBUG TURBO down to 3 inches below the turf level where the Crane fly larvae are found. Please calculate the number of minutes needed for the irrigation water to move the DEBUG TURBO down to the 3 inch level and set the irrigation timer accordingly.
For DEBUG TURBO to be most effective, pH of the water used for mixing should be around 5.5. Please bring the pH close to this level, by using a buffer, like Citric acid.
Apply early morning or late evening (less than 95°F).

APPLICATION RATES, DILUTION AND TIMINGS: (APPLICATION RATES ARE PER 1000 SQ. FEET)

- IDENTIFICATION:** The Crane Fly larvae are grayish brown in color found in the top 3 inches of turf.
- WHEN TO TREAT:** It is time to treat when 25 or more larvae per square foot are discovered (use conventional detection and sampling techniques), or if the health of the turf does not look good (yellowing etc.). HOWEVER in "not well established" turf (1 to 2 years old) even less than 25 larvae per sq. ft. may need treatment.
- TIMING:** The European Crane Fly produces ONE generation per year, whereas the Common Crane Fly (prevalent in the Northwest) produces TWO generations per year. Two treatments may be needed for the Common Crane fly- one in March/April and another in August/September/October.
- For the European Crane Fly under normal circumstances treatment should be done in April/May. However prolonged warm winters can awaken the European Crane Fly resulting in early feeding. This might require treatment earlier, around February/March.
- A PREVENTATIVE application in the fall (around October) may be useful for both species.

**APPLICATION RATES:**

Prepare a 1% solution of DEBUG TURBO (Mix 16 fl. oz. {227 ml} of DEBUG TURBO with 12.5 gallons of water). Check the pH of the mixture and if necessary use a buffer to bring down the pH to around 5.5. Spray over 1000 square feet. Start the irrigation cycle, or the sprinklers, and deliver enough water to push the DEBUG TURBO to the desired depth of 3 inches below the ground. For the Common Crane Fly two applications may be needed, one in the fall, and one more in the spring. For the European Crane Fly one application in early spring would be needed.

PREVENTATIVE APPLICATION:

DEBUG TURBO is a broad spectrum pesticide that controls a variety of turf insects such as grubs, cut worms, ants, chinch bugs etc. DEBUG TURBO has also proved to be effective on a variety of soil borne nematodes in turf grass. It is therefore recommended that a preventative application be made once a quarter to have a worry free turf.